

WEAPONIZED MICROWAVE RADIATION



TARGETING YOU

Radiation and Microwave Technologies will damage the entire human population and create global genocide

Barrie Trower Interview
Smart Meters, Cell Phone Towers and Antennas
WEAPONIZED MICROWAVE RADIATION FREQUENCIES TARGETING YOU!!
Radiation and Microwave Frequencies Will Damage the Entire Human Population
And Cause Global Genocide

FREQUENCIES – The Silent Weapons for a Quiet War Against You

For those of you that would prefer to read rather than watch YouTubes, we have Barrie Trower's talk transcribed here.

This is critical. This is Scary and Frightening, but TRUE . . . Tyranny by Technology.
The YouTubes are posted on www.SmartMetersMurder.com

The Hidden Dangers of Wireless Communications

AT LEAST 10,000 STUDIES REVEALING THE HORRIFIC HEALTH IMPACTS OF THE TELECOMMUNICATION INDUSTRY HAVE BEEN SUPPRESSED!

Barrie Trower (former cold war scientist trained in micro-wave weapons) explains the severe danger facing all living things on planet Earth due to the out-of-control advancement of the Telecommunications Industry. This series is a must see for all of us . . . especially parents and grandparents and folks currently employed in law enforcement and espionage. According to Mr. Trower, children, first-responders and surveillers are getting the highest doses of dangerous Electro-Magnetic Radiation.

Some of the facts explained by Mr. Trower:

- WiFi in schools is a very serious threat to our children and to future generations
- Safe levels of EMR for children have not been publicly announced because **there are no safe levels for children**
- Society really had no 'need' for advanced telecommunication technology
- Telecommunication industry is the most powerful industry on the planet
- TETRA wave system has been used to make both police and demonstrators more violent
- Mobile phone industry is biggest donor to the Cancer Institute in the UK, who have re-diagnosed brain tumors as endocrine cancers so they wouldn't show up on cancer statistics
- Mobile phone safety studies were manipulated to conceal the truth
- The natural environment of the planet is being devastated by the telecommunications industry which is currently the world's worst polluter
- Microwave technologies are causing birth and genetic defects in EVERY LIVING THING including fish, plants, trees, animals and even the slime mold that lives in the soil

Julius: It is a pleasure to be here. It has been quite a complicated travel coming here. It's very nice to be here. It is very important what we are going to discuss and what you have to say. So thank you very much.

B. Trower: It's my pleasure.

Julius: During the last few years, I've been thinking a lot about Shakespeare. He wrote that there's something rotten in the state of Denmark. Of course, it is in the state of the world that something is very terribly wrong. We have this former leading scientist, Sianette Kwee, in Denmark calling it Genetic Rage. She used to teach at Aarhus University. She got the message from the National Health Board in Denmark that she was allowed to say everything but that microwaves are dangerous. That leads me to you. Later on I talked to her. She told me that she believed that the Danes are part of an experiment to be brainwashed by the use of microwaves. Now they believe that they are the most happy people in the world. I would like to know from you about children because children I think are the most precious (gifts) we have for the future. I would like to start this interview with the idea that we need the parents to realize how dangerous this really is because it seems like most have not got it yet.

B. Trower: This is going to be a big answer. Just a couple of weeks ago I had an appointment with one of our ministers. He is the minister for schools. This was concerning Wi-Fi in schools and its effect on children. So the minister wanted me to take something to him that wasn't complicated, wasn't more than two or three sides of paper that explained everything. I thought about this. In the end I did a cartoon. I think this is the most relevant piece of paper not because I've written it, but because it actually refers to every single child in the world. The minister I spoke to was quite shocked. Now what I'm explaining is that there are two different things with schools. Now the first is if you have a school child, could you imagine . . . let's say you have a little girl and I'm talking about girls at the moment, there is a case for boys but it's different. Now if you have a little girl in school, let's say ten years old and she carries all of her eggs that are to be fertilized already in her body. If she sits with Wi-Fi in front of her, the Wi-Fi is going through the eggs. And what most scientists do not know and certainly government officials do not know is that the DNA in these eggs can absorb ten times more radiation than other DNA in the body. So even if you have a safety level, which there isn't for children anyway, even if you have a safety level, it is ten times out straight away. So you are eradiating the eggs inside your little girl. Now what that means is if your little girl has DNA damage . . . and it is likely because we know in the Cold War women were experimented on deliberately to see the effect of low level microwave on pregnant women and we know that 47.7 percent of the women had miscarriages in the first eight weeks of pregnancy. And there are lots of experiments. And we do know that these eggs absorb radiation. Now if your little girl has DNA damage, when she grows up and has a baby and if that baby is a little girl, the genetic damage will come out in that little girl, any genetic damage. When she has a baby, your grandchild, the genetic damage will be there because it is irreparable. It can never ever be repaired. So what we are doing with our children in primary school is we are saying to every single daughter that you have could have a genetic disease until there is no more female line. So it's not just affecting children today. It is their children, their children, and their children. It's going to go on forever. And we're risking this all because we don't want to buy a piece of wire about that long (an arms length) and plug it into the wall. That's what we're risking. But that's only the first stage. Now I've been a teacher for many, many years, adults and pre-university. I have had students which are pregnant. And it is legal in this country for sixteen-year-old girls to be pregnant. The age of sexual consent is

sixteen. In fact, I've taught girls fifteen and fourteen who have even been pregnant. Now the next phase of this drawing comes when if let's say your daughter is pregnant. Now if you can image your daughter is pregnant and inside the fetus of your daughter, which would be your grandchild, inside that fetus the eggs are forming if it is a little girl because they are born with all of their eggs . . . so the eggs are forming. And in the first 100 days your grandchild's eggs are forming. But for the first maybe 50 days your daughter probably would not know she was pregnant. She wouldn't take any precautions. But also for the first 100 days and this again is what the scientists don't realize is that in the fetus or the embryo there is no defense mechanism in the body of the baby to protect itself from radiation. You have defense mechanisms of protein 53, nuclear core complex that help fight radiation, antioxidants. The embryo doesn't have any of those. So what you are doing if somebody is pregnant you are eradiating a person who has no defense against microwaves. And again, a lot of people don't realize that when we are in that first 56 days, we (fetuses) are inside out. Our organs are on the outside of the body because at a stage later on, after 100 days or so, we actually turn inside out again so the skin is on the outside. So you have the organs on the outside and they are taking all of the radiation and all of the damage and this then will make the baby or could make the baby quite genetically damaged with other damages like brain damage, cellular damage, whatever damage. And it's not until that fetus is born and then grows up and has another baby that you may get that. So what we're doing here is we are really destroying many successive generations now just by having Wi-Fi in schools. And it doesn't stop there. Now inside of you, you have about 4,500 different biological structures making your body. Children have about 4,050 making their body. Now children are not small adults. They are neurologically and physiologically immature. They have very little defense. Just to give you an idea, the blood brain barrier that protects the brain from toxins in a child takes around 18 months to form. The nervous system in the body that controls all of our muscles, all of our movement, everything, that takes around 22 years to form properly. There are 122 different layers, like insulation around the wiring in the body that take 22 years. And it is known, it is laid down by a process called protein synthesis. And protein synthesis is known to be effected by microwaves. The immune system takes around 18 years to develop in a child. And again, it is known that the first symptom of microwave syndrome is an attack on the immune system. So what we are really doing by un-regulating or deregulating or having no regulation for microwaves is that we are really putting a very, very great risk on every single generation. And if it were just me sitting here and nobody else in the world agreed I might think well maybe I'm wrong. But in just the last few months we know that what I said to you about pregnancy and childbirth . . . we know that is right because there are mammalian species, cats, dogs, mice, rabbits, who do not take 20 years to have a generation. They can do it in one year or two years. And vets have already started publishing papers about birth defects, lots of different birth defects, miscarriages all sorts of problems with birth. And they specifically publish that this is due to low level radiation from microwaves. So we know it started happening with the animal kingdom. We know just in the last few months there is a 3,000 percent increase in cancers in children in China, a 21 percent increase that has been found in brain tumors I think across Australia. There are several published papers now. I think the most frightening is from the Russian National Radiation Committee with UNICEF which is the children's charity.

B. Trower: They work together. The Russians, with no disrespect to your country or anybody else's, I think the Russians are the world leaders in this, and they found like what I said, central nervous system disorders in children, immune system disorders, brain capacity disorders.

They published the whole thing. And it is all to do with children. So it could be well over 50 percent of the children in the world who will suffer somehow unless somebody makes a stand against this organization, this communications industry.

Julius: I look at the Danish society and I've been observing children for many years, and I said to people that something is very wrong here. And young children are not getting very clever anymore. It seems like they are, like you said, the brain capacity (is changed) and they are very ill. They are ill from being born into this world. And we were not ill when we were young boys or girls. We were out all day, playing all day and having lots of energy. The youngsters today they don't have very much energy. You can see it. It's all there. It's all transparent.

B. Trower: There are two answers here. I was a guest of a king in Africa. I was his guest for two days. And I gave a lecture to the king and the royal family. A teacher came and spoke at the same meeting. He said childhood suicides and bad behavior was almost unknown in Africa, almost unknown. There was no misbehavior, no suicides in Africa. He said then we had a transmitter put up in the school playground. And they started to get mobile phones. He said within a couple of years in my class every single child, everyone, was on Ritalin for bad behavior, everyone. And I can tell you why. And I can really explain this with the brain. Imagine that when you go back to Denmark you pick up the telephone book and imagine you have a magic button. And you can push this button, pick up your telephone, push this button and it will dial every single person in Denmark. Now imagine we're going to expand this and you can push this button and you can dial every single person in the world all at once, every telephone in the world all at once. You push the button and all these phone calls go out. That is the number of connections being made every second in the brain of a fetus, every second. And not just a fetus but as it is growing as a young adult. Every second those connections are being made. Now if you expose a child to low level microwave radiation you are giving that brain up to 1,800 small electric shocks every second. And this is why it is so delicate and so miraculous what is going on there and it (the child's brain) is not designed to have electric shocks go through it all of the time. You are going to get connections that rely on electrical attractions and chemical attractions and they're not going to end up where they're supposed to end up and this is why.

Julius: This year on the 27th of May the Council of Europe came up with a resolution called 1815, which was actually when I read this document, and I said this is very tough because it was much more tough than the WHO (World Health Organization) precautionary principle. And it came actually the day after we had a Danish politician saying they have made a 20/20 plan for the healthcare in Denmark because they have an agenda as to where the healthcare is going. She was saying that if I want to be part of this plan I will want more free wireless internet in all schools and in all educational institutions. And the next day this document came. And no one in the media in Denmark has talked about this one. No one in government. They have all got it, all of the ministers but no one is talking about it. And this really says that we must take the highest precaution about children, about schools, about everything you said.

B. Trower: Tell me if I talk too long and too much. I have been all over the world now in the last twelve years, all over the world. And I'm not boasting and I'm not showing off but when I go to a country usually I always end up on television in news documentaries, news programs. I always have the press interviews and I give the public talks. Now whenever I'm on national television and in the press or on the radio live, usually on the radio with people phoning in, I have one question that I ask in every single country, one question. And I say would somebody from your government, from science departments, or somebody from your ministry of health, or

somebody from the communications industry, somebody who is very, very clever, would they come here on this television program or this radio program live with me, and tell me one thing, just one, and then I can go home and be retired and happy. I say I want the answer to one question. What is the safe level of microwave radiation for an embryo, a fetus, a child or a pregnant woman? What is the safe level? And in twelve years in all of these countries, not a single scientist has come on television or the radio with me to say here it is . . . not one. And the reason they haven't is because there isn't one. There is no safe level. When you buy medicines, we have lots of medicines at our age, there is an adult dose and a children's dose, always. But with microwave radiation there is no children's dose and there isn't anywhere in the world. And this is why.

Julius: In Denmark in 2003 when we started to debate about all these mobile towers and the wires and children and so on, of course the state and the government they made this trick that they always do. Oh, we need more research so we take, two, three, four, five, six more years. And then in the meanwhile they said, oh, it will take three years to do this research. And then they forced almost all schools to install wireless at the same time. And I just said, is this common sense? You've just started research to find out if it's dangerous and then you put wireless in the schools. Now we are eight years after the fact and I believe some schools have started to wonder a bit because the pupils are very out of themselves.

B. Trower: There are countries now in areas of France now that are spending, I think it is, 124 million Euros taking Wi-Fi out of schools. In Canada, there is a region now where they are taking Wi-Fi out of schools. So in the world there are areas now where they realize that if they want a healthy future generation . . . because it's already been predicted that the cost of treating all of these children is far going to exceed the benefits and the money you get from the mobile industry which tends to leave your country anyway. People don't realize that. That may be a question you can ask later is whether any country that floods itself with the mobile industry is actually going to end up bankrupt. Coming back to the children, Wi-Fi is now coming out of schools, but the question you can ask later is about the military and the secret services who want this industry to succeed. And that is where the opposition comes from.

Julius: And you said Ritalin, so many children are on medication. And more and more people are going on psycho vacation. When I talk to many of those people in Denmark and around the world, often I say to them please try not to use a mobile phone. Disconnect everything. Go into the woods. Sleep more and try to see how you feel. They come back and they say can this be true? I say that I don't know what's true. What are you feeling? And last year, actually it came out this year . . . a German professor called Prof. Santini is speaking about the amount of birth and mental disorders and other disorders of the brain in Europe in 2010. And it's shocking because it is depression. It is sleeplessness, insomnia. It is all the things that have to do with microwave radiation.

B. Trower: It's known. I mean it could be as high as an 85 percent increase. But as I say, it is the military and the secret services, and just corruption in some cases, just ordinary corruption. I've been to countries and I've met professors and in one country a couple of them were livid. They said that in their country, one person, without any consultation, without talking to anybody else in the country, they never spoke to the government or anybody, that one person somewhere in the government signed on to say the communications industry can come in, put up transmitters, put up towers anywhere they like without any consultation. He said one person . . . and we all knew it would be dangerous.

B. Trower: There is a lock on the effect that has to do with countries. It is a very complicated issue. Can I tell it to you with countries? You may want to take this video section and show it to any kings or royal people. But I think this really sums of where we're going here. I have spoken to the most secret people in governments, around 60 royal people, kings, queens, princesses, princes, top government officials, leaders of people, leaders of governments, around 60. And over the years they started to tell me the same story. I wish I were the one clever enough to think this up but I wasn't. By the time I started to see other kings and queens I thought to myself I know what you're going to say. And true enough it starts to come out. And some of these stories are where a transmitter was put right on top of the palace or beside the palace and maybe people have got cancer and died inside the palace. And it has made them angry. And they want to talk to someone like me because they're not getting anywhere with their own governments. But the story they keep telling me in bits and pieces was highlighted by one king. And I probably spoke to this king for 2-1/2 hours at a table. We were talking just like this. He leaned forward in his chair. And he said in a very low voice, Barrie I am losing the viability of my country. And he was educated at what we call Oxbridge, Oxford or Cambridge and he's far more clever than I am. He said I'm losing the viability of my country. We were talking about conversations. Now I never give names. But I can say I've been told this before and it seems to be a familiar story. And I'll tell you what it is. Usually the government or somebody in the government invites the communications industry in. They spread across the country. The government gets lots of taxes back which everybody likes. But then you start to get illnesses and the cost of health care starts to creep up quite considerably. The next thing you notice is that your crops or your farm animals start to become sick. And you start to lose the food that you generate in your own country to feed your own country. So you've got sickness going up and you've got your food production going down. Then your pollinating insects which are everything from ants to creepy crawlies to bees to bats start to disappear and become sick. I've given many lectures, two at Glastonbury at the festival on why pollinating insects are dying and those papers are on the internet. So the king said, well my people are becoming sick and I cannot afford the medications to help this number of people. My workforce is going down because they're sick. I have to start importing food that I would normally be growing. He said another thing, the communications industry come in but most of my money in this country is leaving. He said if I have a million mobile phone users and they all spend the equivalent of one American dollar a day on phone calls, then every day a million dollars is leaving my country to go to the four main providers who are outside my country. Admittedly, a little bit comes back because we take some in tax and there are shops where they sell their things and people get paid. But most of the money, every day a million dollars, is leaving. Now we cannot sustain that financial loss over twenty years. He said my illness is going up which means I'll have to import drugs. My food is going down and my workforce is going down. He said no country can sustain this. He said and then the very time I start to worry about this, and other royals have said this, he said the countries that are causing this problem are the first people to come in with aid. They come in. Their drug firms come in. But the price of this aid is that they either want to bring people into my country and have mining rights or land rights or immigration rights or they want water or gold, whatever. But there is a price to pay when they come in offering aid. They offer drugs and medicines and food and everything I need. But I'm losing my country to the people who have come in. And he said if I wanted to take over another country now I wouldn't bother sending a fleet of bombers and military troops. I would just put up transmitters and wait. He said I'm losing the viability of

my country. I am locked into contracts I did not sign as king and I'm losing my country. This is going on all over the world.

Julius: Exactly it is the big corporate takeover.

B. Trower: It is a *big* corporate takeover.

Julius: It is big mobile, big pharma, big cancer, big money.

B. Trower: I thought well okay I've been told this before but a gentleman farmer that I was talking to, he said I'm out of work now. I said well why is that? He said there's a farm down there and I've worked there for the last 30 or 40 years. He would just walk down to the farm and work. He said not so long ago I was walking down to my farm, just an ordinary farm laborer, and there was an American right in the middle of the road, this is Africa, right in the middle of the road with a gun. And the American said to me where are you going? He said I'm going to work. I work in that farm. The American said not any more. This is our land now and you cannot go there. He said this is my job, my livelihood. I have to feed my family and I have to go to work. He said that the American said if you pass me, I will shoot you. I have the right to shoot you. Go back. And he had to turn back and he had just lost his job, just like that. This is the price of moving these around. And when you look at the main countries, and I'm prepared to name them, we are looking at the Indonesians who are putting out the industry, namely Japan. And if you look at what Japan wants they have a little country. They need water. They need land. Along came Indonesians and the Americans. And the Americans want to dominate the world. So it makes sense. This is happening. It is a big corporate takeover. But it gets even more serious and you can ask this question later by all means because the reason that countries won't help you is because of the secret service . . . they will not let this industry fail. If we have 85 percent of our children sick in twenty years' time, it is worth it because now the secret service is having the benefits from all these people carrying cell phones. That answers your question doesn't it?

Julius: It is also when we look at the secret service in Denmark, of course, they actively protect the industry as you say. They protect the ministers, but the ministers don't serve the people. They serve upwards.

B. Trower: Would you like me to talk about this?

Julius: Yes, please.

B. Trower: The secret service has what they think is like a gift from God. Let's go back ten years or twelve years. If your secret service in this country, or any country, said to the people now listen to us, people. We are going to give you a little box. You must carry this little box everywhere you go like an identity card. You must carry this everywhere you go. We will be able to listen to every single conversation you have whether it is on or off. We will know everywhere you go because we can track it whether it's on or off. If you put messages in, secret messages under your code where nobody can get to them, we will be able to go in. We have a device that will go in and unlock your code and read anything private, medical records, bank records, anything, any secrets. So we will know everything about you. We will know everywhere you go, everybody you talk to. We will record every conversation. Now there is a benefit to this. It is that you will be able to push a few buttons and talk to people. Now we're going to make all of you carry these. And you'll probably find most people wouldn't want them. But it's come out in such a way that these cell phones are wanted by everybody because they encourage you to be

lazy. They are addictive because they can train the brain. They are addictive. But the secret service knows everything about everybody all of the time, even business people, everybody.

B. Trower: What the secret service may not know is that up to 125 different countries can also do this, so up to 125 different people in different countries can also monitor all of the calls in Denmark. And that includes all of the people in the secret service. Even if it is coded, other countries can still monitor your secret service. They can monitor your royal family. They can monitor everybody in the government and one of the ideas behind this is the oldest spy trick in the book, and I know a lot about spies because I was involved with spies, the secret weapon of any spy is blackmail. Now if you, as we have certainly in this country, if you have ministers or MPs or civil servants who turn their phones off and they think nobody can see them, and they have a mistress or they like young boys or young girls, or pedophiles, whatever, or films, and they belong to a club or something like this, they can be blackmailed. They can be seen going in. Everything can be heard. They can be seen coming out. And the oldest trick in the book for spies is blackmail. And once you have somebody in that position who can be blackmailed you have them. If we have a minister and I go to the minister if I'm blackmailing and say now look you have a family, three children, I know you sleep with boys who are twelve years old, now I can expose you or you can do this for me. And what your people don't know is that up to 150 different countries can be monitoring that and your royal family, and it gets even worse because I was involved in one spy case where you see it gets very complicated. But you can also send pulses into people's brains. And not many people know this. You can send microwave pulses into people's brains and it can be done from any tower or any mobile van. You can park a car outside somebody's house when they're sleeping. It's very easy. This has been known for a very, very long time actually. You can put pulses in people's brains and there are around . . . I can give you a list of them . . . there are around 30 – 35 different pulses that I know of that can cause maybe 50 different neurological and physiological symptoms. Now for instance, you can cause sexual aggression in men, suicidal tendencies and depression. You can interfere with the circadian rhythm of the eye and affect vision. You can affect the natural rhythm of the heart, either the cyclotronic resonance frequency or the circadian rhythm of the heart. You can make any part of the body virtually become ill and affect all of the mental processes. In fact, a paper was even published during the Cold War and now released under the Freedom of Information where you could even fool psychiatrists just by inducing paranoia and schizophrenia and other behavior patterns that would fool psychiatrists just by using microwave or radiation. And I can give you a list, if you want one, of all of the symptoms. So you have this. And it is not beyond the scope of any country to go to Denmark and if you are a royal person or a minister or somebody they can follow you with this or even if you're an Olympic athlete and they want you to lose, they can make you lethargic and lose interest. And I have known a case where Olympic people have been targeted by microwaves and I have known a case where government ministers have been targeted. And I was involved in giving evidence. I have also been involved in giving evidence where the military were targeted and they acted totally out of character. So you can actually target people. And you can cause a country great embarrassment or you can almost induce somebody not to think properly. So this is quite a successful weapon.

Julius: Just to come back to some of the things you said. In 1996 there came a document called The Terror Papers. It talks about a genetic experiment and that we are part of a genetic experiment and so on. It said at the end of the document it would be very good if we could

implant people with a microchip but that it would not be very practical. Then they asked how could we make people carry a device voluntarily? The paper says that people must be betrayed. And on the next page at the top of the page, it just says there is only one device available on the market today that matches the frequency of the brain . . . that device is called a cellular phone, no matter if this document is false or whatever. I always read something and if it fits with reality, it is good enough for me because it shows a lot. When you mention the induction of psychiatric illnesses or mental states and so on, I have this friend who lives in a place in Denmark where one of the big producers of medications, these happy pills or so called happy pills, are placed. Once I walked by and I wondered how come they have this antenna inside the factory. I could see it. And then I saw that it was pointing somewhere. It was pointing to a hidden radar station which I happened to know where it is. And I just said well could it be that the big pharma inventing these medications know exactly what to induce in people to cause these illnesses to create big money. And when we look at this report about the burden of the illnesses, like you say, that take over a country, when I look at Denmark, and I speak from the Danish perspective, when I see how people are on medication and that 25 percent are depressed and people are affected and not very workable, and they all just entertain themselves with the phones, the smart phones so to speak, and the Facebook and the internet and so on, but they don't have power anymore. They don't have the power to take action to do something. It is actually very scary when we put it together.

B. Trower: Have you seen my list of all of the frequencies and what they can cause?

Julius: Not yet.

B. Trower: I'll get it for you. You're right. Implants we know. There is lots of documentation on implants which will transmit into the brain. And implants would transmit into the brain. Now you don't need implants because there are so many towers and hidden transmitters, even streetlights can have transmitters in them, road signs. And there is a system and it has been out for about ten or twelve years now called Celldar. There are different types of Celldar. But basically a computer, if they wanted to watch you, it is like radar only with microwaves. Once their system is locked onto you, let's say from this lamp post, if there is a transmitter there, once it is locked onto you, the computer will take away anything that isn't moving like buildings and it will have your size. Then as you walk up the road and you get lost from this transmitter the next one will pick you up and then the next one. And they can follow you everywhere. If they want to they can also send a beam into you, a microwave beam. And you may think that is a bit farfetched but there is documentary with evidence and lots of it, to show that the women of Greenham Common during the Cold War were microwaved by the American base and made to feel depressed and suicidal and have cancer. We used them on the Catholics in Northern Ireland. We would do whole streets. And that has been documented and was brought up. And the MPs complained about it. So we used them in Northern Ireland. The Americans used them on the Catholics. The Russians used them on the Americans. They have been developed for over sixty years now to perfection. I think I probably have the most comprehensive list in the world of pulse frequencies and what they can cause because I looked into this. But you are right. Where this started out was maybe so that we can keep an ear on our people and see what they're up to. Different organizations are now getting new ideas and making new devices and they're not coordinating with each other. And one department is developing germ warfare, microwave germ warfare. Another one is developing how to eliminate MPs and royal families. If you don't want a royal family it is very simple to get rid of them. And what they don't know even in this country is that our British royal family is given little devices to

carry which they're told is just in case they are kidnapped we will know exactly where they are. But they could also be transmitters going into the royal family. They may not be, but they could be. So if you have a country where the government or the people who run the country do not want the royal family anymore, they are very easy to get rid of and it is very easy to find out what they're doing, what they're saying. Any royal secrets are all being stored and logged. And the royal family has no idea usually what is being kept about them, on them. And maybe they have secrets. And all of these are being recorded, everything.

Julius: Talking about royalty in Norway, I told you that I have this Norwegian friend but he came out here in 2011. He wrote about the Norwegian king. They have this summer residence where they spend a lot of time during the year to relax. And they put this station inside the building . . . and it was radiating 700 times more than normal. And no one would take responsibility. How it got there, no one knew. Then they found out it was the biggest mobile phone company in Norway which is actually Scandinavian or actually perhaps even becoming worldwide. And now it is removed . . . but he got cancer. He got heart trouble. He was operated on. And all the staff got sick as well. It was all there. He actually was a king that was really serving as a king, not trying to corrupt anything. He was really a real king.

B. Trower: He's not the first one that has happened to. Not the first.

Julius: But it just confirms what we have said.

B. Trower: Yeah, it has happened. When I go to countries and I talk, I often get a message in my hotel, usually a secret message, saying we want to talk to you. And a big car turns up and I jump in and I think well someone is going to shoot me in the back of the head any minute now. And I end up in a palace or somewhere and we have a very good discussion and then I'm taken back. But there is a lot that the royals do not know. Again, you're looking at the destruction of a royal lineage because if the children are being microwaved, if they come up to the royals and they say you need extra protection and they increase the power, what they're really doing is making the future generations very, very sick or they can make them mentally retarded so they cannot rule. And maybe, I don't know, somebody else wants to take over the country for whatever reason, I can't be bothered with world domination but some people may have a reason to take over the country and control it.

Julius: I've been wondering for many years what it is that is pushing, pushing, pushing all these technologies. Then I talked to Professor Olle Johansson from the Karolinska Institute in Stockholm. He said to me that he was at a European commission where he asked what is the need for all these technologies? And then the European guy said to him, well that is probably the most intelligent question ever asked here. Then Olle Johansson said well what do you mean by that? There was no need (for these technologies) except to generate maximum profit. So actually, technology is used as a cash cow to generate enormous amount of profit, but then again, of course, also to the civilian stuff in all this. But when we talk about big corporate takeover, world takeover and so on, we have to look at big banks because there is a lot of money involved in this. And how come they can make all these commercials? Media is full of pages every day. And people are becoming so taken over. What is your knowledge about how actually to mind control people? How to control people efficiently with commercials? Do you have any expertise in that? How they can manipulate?

B. Trower: Manipulate the brain?

Julius: Yes.

B. Trower: Well there are different ways. First of all this industry, now you talked about money, financially this industry is now the most powerful on the planet, the mobile industry is the most powerful on the planet. It has so much money that it can even tell some governments what they will and won't do. It is a very powerful industry. On top of all of that, it is an information gathering industry. So somebody is gathering all of the information. And certainly, the Americans are gathering it because if you think of Google, an American based company . . . and everything usually is on Google . . . people don't realize that even ordinary telephone calls are recorded and stored, ordinary telephone calls. I mean people like me. I would imagine my telephone here, that there must be at least five different organizations listening to everything I say and watching me everywhere I go. So we're dealing with an incredibly powerful organization. There are different reasons for training somebody's brain. It could be just to experiment. For instance, we know that 6.66 pulses a second going into the brain can cause sexual aggression. I have a list here. It may be the most comprehensive in the world. Now I don't know, but some of the things (frequencies) are that you can change the heart, the sleep pattern. You can induce hallucinations, amnesia, drowsiness, depression, visual distortions, hearing distortions. People will actually hear voices. It is called auditory hallucinations. It's very easy to do. And if you go to a psychiatrist and say I keep hearing these voices, you will end up in an asylum, especially if the voices are telling you to do something illegal or criminal. It is very easy. Auditory hallucinations are very easy. You can induce anger, manic behavior. Here we have visual hallucinations, as I've said, and irritability, the loss of ability to make decisions, and so they go on. There are quite a few of results here, hyperactivity, especially with children, and anxiety.

Julius: When you say that one can lose the ability to make decisions, I remember in 2006 in Denmark it was on the national radio and was just said once, but it was said that mobile phone radiation disconnects the ability to make decisions.

B. Trower: Yeah, it does. You can lose the ability to make decisions. But this was known. This document here is published . . . by 1976 it was published by the United States government that there were some eight and a half thousand research papers by then proving all of this, military papers, government papers, experimental papers. And they published it. Here is a list of all of the physical and mental illnesses you can get from microwaves at cell phone towers and Wi-Fi towers. So cell phone and Wi-Fi and all of the illnesses you can get are listed.

Julius: There is a movie called Control Factor. It actually illustrates what you just told me and how it can be done. And it might be a little over-exaggerated but today it's done with wireless. You don't need to implant anything. You can just do it by frequencies. But some of the things that I find very strange is that so few people are able to see and connect the dots because I've been observing people, and I have observed since 2003 when we started the debate, that people have become more and more disconnected . . . that they don't seem to function or think coherently. You can disconnect the thinking.

B. Trower: The CIA actually patented some of these devices. And I have the patent numbers somewhere. And the CIA and the Canadian government were taken to court once for this. It took fifty years. But they were taken to court and they lost to the people who said they have been experimenting on us. But like our government, it takes about fifty years to take a government to court because by then most people are dead. All the people who made the decisions are retired or

either dead. The victims are usually dead. And there is very little compensation. And people are not really interested fifty years on anyway. But both this government and the Canadian government and probably the Americans, they have a very good delaying strategy for about fifty years to take them to court.

Julius: That means that we are reaching the point of the fifty years. If you look back from the sixties, it's about time now.

B. Trower: There was a case very recently and I was involved in this where they wanted to use me. Just a sample, when I was in the military in the very early sixties a notice came round inviting all young fit personnel, we were all young and we were all fit personnel, to take part in flu injections. They wanted to give us a flu injection so we wouldn't get the flu in the military. You were offered a weekend in London on full pay, an extra weekend off in London. I thought this sounds good. I'll have some of this. But my commanding officer read it and tore it up and told me not to be so stupid. But that was in the sixties. And only two years ago, the survivors took our Ministry of Defense to court fifty years on because the shots had nothing to do with flu. It was all sorts of viruses and chemicals. And they needed lots of young people that they could experiment upon, young fit healthy people, and where best to get them from than the forces? And they wanted to see what would happen. Most of them died. The survivors that still had cancers and viral infections took the Ministry of Defense to court and they won. But again, there were only a few survivors.

B. Trower: And we're now seeing that it is another experiment exactly the same as that with Tetra. Tetra airwave is another experiment where they are looking for cancer. They are looking to see how the frequency affects the brain. It is totally undeveloped, not tested, and Tetra is an experiment. And in one of the government scientist's documents, it is written that now up to 7,000 officers today could have slow growing brain tumors, gliomas or acoustic neuromas. Up to 7,000 could have slow growing tumors that take twenty or thirty years to develop. So it won't be until these officers are retired, be they ambulance, brigade police, MI5, MI6, Secret Services . . .

Julius: Emergency services in Denmark.

B. Trower: Yep. It won't be until they are retired that the brain tumors will show themselves. But it is an experiment. And I've got all the documentation that says that it can cause this. And not only can it cause this, but it can cause severe personality changes, lots of types of severe personality changes including severe aggression and bad behavior. It is just an experiment. And all of these things are being monitored as an experiment and it is illegal. Any human experiment is illegal because of the Nuremberg Treaty. And I've published this. At the end of the war . . . you don't mind me talking about the war?

Julius: No.

B. Trower: But at the end of the war when the Nuremberg trials were being held in Germany it was agreed, all the major powers agreed then and signed what was known as the Nuremberg Treaty. It says that no human being anywhere may be experimented upon at all without his or her full consent. And before they give consent, they must have a full knowledge of the trial. They must have a full knowledge of all of the risks and they must have the ability to say no without any fear of losing their job or anything. And not one police officer, like I said to you with one country, not one person invited the whole communications industry in, not one person for the

police force signed to say yes we will have this. And yet one person agreed that all of the officers could take part in this without even talking to them. One person.

Julius: I know a friend in Denmark and he serves as an ambulance driver. He's a paramedic also. They have just installed Tetra in the car. And every time they leave with the car they need to have the radio on. And he has measured it. He says it is extreme. It is seven or eight times more radiation than the safety levels. And he says the antenna is inside the car of course. And when I go around the cities and see these Tetra antennas, 17 centimeters and so on, and I listen to what microwave Tetra is like, it's beeeep. I sense myself, I feel myself. And I can feel when I come into these radiation areas because I feel like I get more left brain, you can say, more mental and more like suppressed or more cynical.

B. Trower: In fact, I'm hoping to go to court this June. This is really up to date. If you have anybody in your emergency services, show this bit to them. Now I wrote two of the safety reports on Tetra for the police. And in both reports I condemned it as too dangerous. The government overruled me and said no. This is going out . . . and my reports . . . one of them is on Google and the other one is on something called WikiLeaks. Have you heard of WikiLeaks?

Julius: Yeah.

B. Trower: One is on there. We had riots here in London when the G20 . . . when the world leaders, financial leaders met. It was two and a half years ago I think. We had riots in the streets. And we had a police officer who beat a man to death on the pavement with a stick. Other police officers were very violent. The rioters were very violent. But when you look at the film you see we have big police vehicles. And they are transmitting into the officers and into the rioters. And the police here do what they call corralling. They block the path of all of the rioters so they can't leave. And then they start to close in like you would round up cattle. And they have all of the people in a little area. And then they are beaming down into them as well as the police. Now when I looked at the film, if you think of this, you have the police officers who before the riots are sitting in the back of a metal van. They are all transmitting into each other. Now they all exceed the dose of allowable microwave dose. If you are with Tetra, if you have it on for more than six minutes, if you are near four other people and there are twelve in the van, if you have a metal helmet, you are exceeding the dose. And all of the officers exceeded the dose. Now one of the things you get if you exceed the dose is that you can be induced to show excessive violence. And that's not just the police officers. That's the rioters. And what we have here . . . we have rioters being taken to court and sentenced. We have police officers being taken to court and sentenced. But not one person from the government that knows Tetra can cause this spoke up. Not one person from the government has offered one piece of paper in evidence to say these people could be innocent. And some of these people could be facing life in prison. Not one person from the government has come forward to say this is experimental. We know from our own documents this can cause aggressive violence, aggressive behavior, severe personality disorder. And if you're overdosed it's going to exacerbate that. So, not one person from the government has come forward with that information. Not one person from the police federation has come forward. And they know this can happen because our police federation actually wrote in a document that we know this happens to our police officers, but as it is up and running . . . and we can't do anything about it. And they're the union. So we have this situation where the police federation has not told the police that they can use this as a defense and they are paid by the police to represent them. The government has not told them. And we have the officers and the rioters or demonstrators being charged. And I wrote to the high court judge and I said that

this is a miscarriage of justice. This is not fair because you should have the defense for the people. And if necessary, the government scientists and the police federation should be in the court. And this was accepted by a legal person who passed it onto another legal person now. And I'm hoping that this is going to be used in court as a defense because the people that have gone to jail, and we're talking a lot of them, shouldn't be there necessarily. And this is provable. All you have to do is reenact the day, take an EEG, an ECG before, reenact their exposure and take it afterwards. It is easily proven. So I'm now hoping to get this brought up in court for one of the big trials and have everybody that has gone to jail released. And this is where I'm at, at the moment. It is not just this country. When I wrote to the judge I said that in every country I go to I am always approached by somebody from the police, the ambulance officers, to say that since my officer started using Tetra airwave their behavior has changed. They're losing sleep. They're becoming sick. They're becoming angry. They're hitting their wives, the whole thing.

Julius: The man I know in Denmark says he is very active and has written to all these departments and the union and so on and they say they will look into it later. Then they keep coming back saying no, it is safe; there is no problem. That means they are totally lying of course.

B. Trower: They are lying. They can't say it is safe because it is an experiment. And the experiment doesn't finish until 2018. So they can't say it's safe. It is a long running experiment.

Julius: Since 2007 I have observed that a lot of things have changed. And people's mental health has really been degraded since. And even people you know, it is like the human side of people have been removed. So they are very de-human in a way, they react very strange. But I don't know if it was 2007 or 2006 that someone found out that the Danish state had sold or made a deal with Motorola about the Tetra Emergency Net of Denmark. It was really what you call a pilot deal or something. Do you know what is going on around the world with this?

B. Trower: Oh, yeah, absolutely. And I've published this. If you Google my name, one publication is on Google. My confidential report for the police federation is on Google. And my highly confidential report I'm told is on something called WikiLeaks. That is on there. And we know and it is published that the Americans want everybody to use Tetra because they can listen in to all your Secret Services. Even the coded bits they can listen in.

B. Trower: But it is not just the American government listening in. The Americans have two big worries. One is if they have to challenge China . . . because China is a major power against America. The other is Europe. If all of Europe got together, all the European countries, it is a formidable force for America. And what better way for the Americans to understand what is going on within each country when there are some fifty-three organizations that use Tetra . . . Coast Guard, customs, police, Secret Services . . . and the Americans can listen in to every single conversation in all countries. They know exactly what is going on. So if it came to war, and goodness knows what happens in this world, one minute you're fighting somebody and the next minute you've joined them and you're fighting somebody else . . . if it came to war, the Americans would have all of your military secrets, all of your government secrets in every country. And you wouldn't be such a threat because they would have the advantage. They already know everyone everywhere and everything.

Julius: In 2008 in Denmark, I was reading a document from the telecom industry and there was a guy that wrote somewhere that it is the state that has a vision for the mobile and wireless society. And I said uh-huh, it is the state that has a vision. That is why they say there

must be complete coverage of Tetra. But then I started to wonder. I say okay, the state sells these licenses for the mobile phone system. They get a lot of money. They rent out positions for the mobile towers, again a lot of money. They put scientists on a job to find out whether it is dangerous or not. And they evaluate themselves. And all the reports are useless. It is only their scientists that know the truth. Is that what we call inability?

B. Trower: Oh, yeah. But they have a secret. They have a secret as well. There are different safety levels. Now there is a safety level held by the Russians and some other countries. And they look at how the waves interact with the cells. So what we're looking at is things called rectification, interruption to the cyclotronic resonance frequency, the circadian rhythm in the vibration of the water bound layers, things like that, how cells change their vibrations and the way they change the conductivity through the cell. Now that happens at very, very low levels. In fact, it can happen at any level below freezing because the waves still travel. And if you have a safety level based on that then in terms of units, ordinary microwatts per centimeter square, in terms of units, a safe level . . . you're probably looking at the bio-initiative reports. We're talking about sort of electrically induced phase transition where the waves change phases. A safe level is about .2 of one unit, about one-fifth of one unit. Up until last year, we allowed 10,000 units because along with other European countries we only look at how warm you feel. So when the scientists do their experiments and they say this is perfectly safe what they're saying is children could play ring-around-the-rosey around a transmitter all day and never exceed the maximum dose because they wouldn't get too warm.

Julius: Only from running around.

B. Trower: Only from running around. So when the warm level is 10,000 but the safe level is one-fifth of one unit, but last year the industry in this country . . . and we have just gotten rid of probably the most corrupt government ever where I think over 60 percent of our parliament were found to be thieves or liars or corrupt . . . the last thing they did was to give the mobile free license . . . now they've actually made an application to the government to have no safety limit at all . . . no safe limit.

Julius: Earlier this year in Denmark the politicians agreed that we should have 100 percent coverage indoor and outdoor within a year. That was in February 2011. So that's the same situation. It is all over.

B. Trower: Yeah, still there are people very, very high up, and I'm not talking royals, there are people very, very high up in government or civil service, very high up, who have a lot of power. And they are telling the people below them what to do. And I can give you an example. Going back to children . . . a case of children where a survey was carried out around Europe . . . and it was found that where transmitters are in school playgrounds they found 200 schools where there were cancer clusters among the children and the staff. In this country, some of the cancer clusters had eleven or twelve children all under the age of eleven. And MPs took this to parliament . . . a group of them. And they listed all of these cancer clusters in schools, mentioned all of the ones abroad and blamed the mobile industry. They said the mobile industry was lying. They are telling lies to parents in schools saying these are harmless radio waves . . . lots of things, being uncooperative, putting transmitters up without permission and then not taking them down. And at the end, the minister who was given what to say, he stood up and said we are within international safety guidelines and sat down. And that is it.

Julius: Then we come back to when we talk about guidelines, we have the (inaudible).

B. Trower: Well that is it. It is the same.

Julius: It is the same and it's all done by the same scientists. They're all interconnected.

B. Trower: Yeah, because of this document here. I think this first sentence is the most dangerous sentence written since the declaration of war in 1939 . . . this one sentence at the top from the American government. And what it says . . . it says, and I'll paraphrase it, it says all of these illnesses are known to occur from low level microwave or radiation the same as you get with all phones, all towers and Wi-Fi. They're saying you will get all of this. But then they are saying Western governments must not be strict with safety levels because it will affect what the military wants to do. And it will also affect industrial profits. That is exactly what they're saying here.

Julius: That's what Robert Baker . . . he got sacked from that, when he said that.

B. Trower: Yeah, and this is where ICNIRP came in. They said we will do what the American government wants. Instead of having a safe level that they have in Russia and other countries, we will look at just how warm you feel. And our level will be up there. And this is why.

Julius: When you talk about ICNIRP, we have to talk about WHO (World Health Organization) as well because those two go to bed together.

B. Trower: It is the same people.

Julius: But the WHO is really a private organization founded by Dave Ruttum. It is really a mind machine.

B. Trower: Now with the WHO I was talking to one government a few years ago now and the gentleman following me was Robert Repacholi. He was following me. And when you spoke to this government, you had to speak under oath to this government as you do with some of them. You have to swear that you're under oath. And when Robert Repacholi followed me . . . and we were also protected from prosecution . . . there was no slander. You could say what you wanted if it was the truth . . . you could say what you wanted. And when I was speaking, I said I do not trust this gentleman who is following me, Robert Repacholi, because I believe he is taking money from the mobile industry and he is representing the World Health Organization. And when he came to speak he was asked are you taking money? And he admitted he was on the payroll, on a retainer of the mobile industry as a consultant. And his hourly rate is more, I think, than my annual old age pension, a colossal amount of money. But when he was representing the World Health Organization, he was also representing the mobile industry and he was being paid. He lost his job. He now works with the University of Rome. He fought a case for the mobile industry against the Vatican where he lost when the Vatican was transmitting and all the children and people were getting cancer. He lost that case. I think he's still with the University of Rome. But it is the ICNIRP, the WHO, and our government scientists here. It's the same people that sit on the same benches and this is one BIG boys club. And between them, and I've said this publically, between them . . . and I said this in Birmingham about eight years ago in a public conference . . . I said these people, this small group, and it is a very small group of people . . . I said they will be responsible for more suffering and death in peacetime than all of the terrorist organizations in the world that have ever existed added together. And they will be.

Julius: In Sweden we have a Swedish journalist. She is called Mona Nilsson. The book is in Swedish. But she has spent the last eight years writing two books. She got this from

Professor Anders Ahibom, a colleague . . . and it was from that year in May from one of the WHO . . . and she has come forth with so much that he was actually thrown out because he was the director of the company working for the telecom industry saying that it is not safe and so on. And he was removed. In 2004 they removed the precautionary principle that was there to protect the people.

B. Trower: Yeah, so it is the same people sitting on each. Now who is controlling them or who they are reporting to? I don't know. But they will be responsible.

Julius: When we talk about who is controlling them, we can call it The Organization just to have a thing to refer to. When we look at the WHO, it was founded by Rockefeller. He gave them the UN building in New York. It is the WHO, and they say to the National Health Board you have to say this. We don't know yet. We will put more science up. The interim study they are discussing from, they cannot agree. They agree. And then they can't. They came out on May 1 this year saying that it might be a carcinogen, the radiation. And then they have said here two months ago, or one month ago, no it might not be true anyway. It's all confusing. It is doubt making.

B. Trower: Yeah, and this is deliberate. In fact, our biggest cancer charity in this country is the biggest founder in the mobile industry. And the man who runs it says very repeatedly mobile phones are safe.

Julius: When we talk about cancer, that's why I do this work, because I think they have a very bad reputation when you talk about cancer. We have this guy called Christopher Johansen who works for the Danish Cancer Society. And he has been lying and lying for so many years. And the Danish Cancer Institute is very well known for deliberately lying and plays on misinformation. It came out some years ago that the Danish Cancer Institute had actually lost a lot of money in playing the stock market. And the Swedish Cancer Organization had invested in big tobacco.

B. Trower: The World Health Organization, it was found out in this country, they re-diagnosed brain tumors as endocrine cancers so they wouldn't show up on the cancer statistics. And we have in this country, when I last looked we had 10,000 brain cancers not showing on the statistics.

Julius: That's a lot. The Danish Cancer Institute has been used like a white washing machine I think. They made this study and they got the two biggest groups to say actually mobile phones could not be really any danger. But it seems like every time there comes a new study on the market, or someone is talking, the Danish Cancer Institute comes forward and says something and it goes in the media.

B. Trower: There are two things here now. The first thing is all of these people . . . the industry, they do not have to show this is safe. They only have to do one thing. All they have to do is cause confusion. That's all they have to do. And they do that very well. And it is very easy to cause confusion because our universities are desperate for money, absolutely desperate. And the biggest contributor to universities or university research is the government, the biggest contributor. And it is not just me. We had a minister and an American senator who have also said that we've reached the stage now where governments can buy the results that they want. They can buy the results that will cause confusion. And that's all you have to do. And a good example is the Interphone Study that you've just mentioned. Now this huge study, the Interphone Study, it

actually showed increased cancers. Then the statisticians moved in. So they eliminated everybody under the age of thirty, which are the main users. Everybody over the age of fifty-nine was eliminated. They eliminated everybody who uses more than one phone. So you have one for business, one for pleasure. So they eliminated those. They defined heavy use as, I think, something like two hours a week, something like that. And they ended up with something like just 16 percent of the population. Then when you spread that 16 percent over the whole country and say how many of these people are getting cancer you get to the point where they ended up saying that mobile phones not only don't cause cancer but they prevent it because people using them got less cancer. This is how you do it. You only have to cause confusion.

Julius: The game of statistics.

B. Trower: It is a game of statistics, yep. That's all they have to do.

Julius: By now they should know that governments . . . sometimes I say the word government because it's actually when put together you could say 'to govern' and then 'ment' and 'ment' could be *mental* so it could actually mean mind control.

B. Trower: I think it is above government. I think the ordinary member of parliament . . . Do you have members of parliament in Denmark?

Julius: Yes.

B. Trower: I think the ordinary member of parliament represents the public. They are trying to fight this. They are told by ministers what they will and will not say. And it is somebody telling the ministers what they will or will not say and it is these people who are controlling.

Julius: I see it as when we look at a pyramid. I just came to this conclusion some weeks ago that when we have the ministers, the ministers, they go to the queen and get like a stab in the neck, now you serve this part. And the other members of parliament, they try to serve the population. But they have no real power . . . only some ministers (have power) because they get something from serving the top.

B. Trower: Yes, now this could be, and I don't know, it could be if the ministers have to go to royalty . . . it could be and it is certainly possible . . . with pulse radiation to control royalty then . . . it could be that the royalty are being manipulated.

Julius: It is kind of our institution that when a new government comes in they have to see the queen or king.

B. Trower: The same here. But our queen can't influence parliament at all. She's not allowed to. I mean the queen, really, she's just a queen. That's it. She can't influence. Parliament tells her what they are going to do and what they are going to say. She can't actually influence it. She's not allowed to.

Julius: It might be a little different. It's all the same kind of show you can say. When you look at the people that are tending the queen in Denmark, we have the chairman of the biggest energy company and a NATO company and the Scandinavian airline system company and you see those people and they are interacting with the biggest bank family of Europe, the Rothschilds, and so on. So it starts to crumple very much . . . that they are perhaps all controlled by the bankers when it comes down to it.

B. Trower: It may be. The question to ask is who benefits? Who benefits from people being sick in countries and whole generations becoming sick? Who benefits?

Julius: Who owns the big pharma industries?

B. Trower: Yes, the one who owns the industries. The pharmaceuticals, the communications, they are the only people who will benefit and the countries that they are based in.

Julius: But when we talk about global takeover and we look, they don't care about the nationalities. They see it as the super national . . . that they want world power. And when you talk about the takeover and Tetra and how it is done, it might be an attempt to . . . some are calling it conspiracies, some call it whatever . . . but we look at how society is and why it is going up and it might look like the populations are being run down. And many are dying actually from illnesses. It is called a slow kill perhaps, these methods being used. And then it is part of the big population (reduction) also if the female cannot have any more children.

B. Trower: Yep, depopulation. I mean what would be better than having a smaller population totally under your control.

Julius: That's a slave race.

B. Trower: I don't know. It may be.

Julius: That's their goal really.

B. Trower: Yeah, this is where we're going anyway . . . if you can manipulate the royals who control the countries. It is a bit like at the end of the war when Japan surrendered. They kept the emperor because the emperor controlled the people. And the Americans, if they could control the emperor they would control the country. And here if you control the royals you control the country, which is simple. I mean the first thing the mobile industry does when they move in is they go for the top people.

Julius: There was a CIA research director in 1972 . . . he said that mind control means a world where every human thought, every emotion, every observation and every need can be controlled by electrical stimulation of the brain. I'm just the man on the floor and I said when you put this mobile phone to your ear and you have a mobile phone tower and everything you do today has to do with electrical devices, well, could it be that we are seeing a global mind control program being rolled out through the wireless?

B. Trower: I don't think so . . . and I'll tell you why, because it may be in the western world, but you have opposition like Russia. They also know that this can happen. They will not let America or Europe dominate Russia.

Julius: But what if it was Russia doing it?

B. Trower: Well Russia may be doing it on its own people. They have the world leaders, but they have a similar one . . . but the Americans can reach anywhere in the world with HAARP.

Julius: And Norway will have a (inaudible) and Sweden will also.

B. Trower: The Americans can actually bounce waves off the ionosphere anywhere around the world with HAARP. I can't verify that this is true. I know some of it is true. But I can't verify all of it. I only know what I've been told. And I was in Australia. I was a guest in

parliament of one of the ministers, Lee Rhiannon, a Green, a lovely lady, a Green minister. I spent a couple of days with her talking and giving her documents. It is one of these big black cars turns up at the hotel scenarios. I had a very mysterious phone call from a government official. And like you, I know when I'm talking to people who know what they're talking about. If somebody didn't know, I would spot it in about thirty seconds just by the words they used. I had a phone call from a chap saying we need to talk and we need to talk very, very privately. Fine, okay. So I got in a big black car. He takes me off into the night. He takes me down into the basement of a building. It is quite dark. And it was where he worked, quite dark, and again I thought this is going to be the bullet in the back of the head. But we sat down and we spoke. He said I'm very, very scared, Barrie. He said we've reached the situation now where HAARP . . . we can reach anywhere in the world. He said years ago . . . and I knew this to be true because I was told it before . . . if somebody has a heart attack and their heart stops you can put the things (paddles) on it and 'thunk' . . . and it starts the heart. He says we now have bacteria, as you have like with the great plagues going back for years, bacteria can lie dormant in the soil for hundreds and hundreds of years and they can be reactivated. We know sometimes you get gravediggers and if they are digging a grave that was a grave before and somebody was buried there from the plague, sometimes you can even get bubonic plague which is now easily treated with penicillin. But the bacteria can come back with the frequency of light. And he said what we've got now is government scientists . . . and he said I'm very scared about this . . . we have government scientists who have developed frequencies that can regenerate the bacteria from its dormant state into its live state. He said now think of the implications. He said if I want to come to your country, I can just drop bacteria . . . let's say I want to cause a wheat devastation . . . or cattle, a disease in all of your cattle . . . He said all I've got to do is come to some of your farms, walk over the farms, drop the bacteria and come back. Then just using the frequency you can bounce the same frequency around the planet . . . or use towers. You can reinstate or activate the bacteria and you have mad cow disease. You have wheat disease. You have tree fungus. He said you can devastate a country's economic value at the push of a button. He said you can bring total devastation to the farming or the livestock or trees or whatever. You can totally devastate a country. And he said it can get even worse because inside dormant bacteria you can have dormant virus. And when the bacteria come to life the virus will come to life. And a virus can stay dormant longer than bacteria. He said so we've got to the stage now where we're into microbiological warfare from things like HAARP mobile towers and we can induce any form of bacterial warfare in any country by the use of this system. He said . . . and it is so easy now and this is actually up and running . . . he said it is so easy now to bring total devastation and economic ruin to any country by microwaving it and bringing the bacteria to life.

Julius: Can you say what nationality without mentioning the name, what nationality was he?

B. Trower: He was Australian. But he got the research . . . I think he got the research from a joint venture between the British and the American governments. And there was actually something on the web. So it wasn't secret at the time. There was something on the web that somebody said to me where it says we can now regenerate yeasts by electromagnetic pulses. In yeast you can put bacteria. And in bacteria you can put viruses. So it was actually on the internet first. But he was Australian and it was British scientists and American scientists doing this. So it is known. And this is very scary if you can bring about the devastation of a total country. And then, of course, you go in with your aid.

Julius: It makes the plague look like nothing.

B. Trower: It makes the plague look like nothing. I often wonder when you hear the news, and you think, well, all of our beef a few years ago was wiped out with what we call mad cow disease. In other countries like Denmark, Sweden and so on, whole forests all of a sudden fall victim to a disease. And I think, well, is this normal or was it deliberate? Of course it is international finance now. And if you can cause this you can go in with the aid. But it is certainly up and running.

Julius: When we talk about microbiological warfare and all these things . . . when we talk about what is going on in the world and we're all being manipulated and there's a lot of things going on . . . we come to the big thing about CO2 because the CO2 . . . that's probably the biggest problem overall, one of the biggest problems. What have you got to say about microwaves and emissions and CO2?

B. Trower: There are three papers published about this. I think I referenced one or two of them because they all really come up with the same conclusion. *And what they now say is that the biggest polluter on the planet now by far is the communications industry, the biggest polluter.* It has exceeded the aviation industry a few years ago. In other words, all of the exhaust fumes from all of the airplanes in the world are now exceeded by the carbon dioxide produced by the communications industry. And it is produced because you have hundreds and hundreds of thousands of transmitters all over the world. They all need power. All the mobile phones need power. All the Wi-Fi sets need power. All the gadgets need power. And all this power has to be generated to feed the industry. And the more the industry puts out Wi-Fi, not only are they contributing to warming the atmosphere, but they are increasing this carbon footprint as it is called. So the mobile industry is the greatest polluter on the planet today, the greatest polluter. And that is documented. And the funny thing is, with this government, and I think our governments are still corrupt, this government was talking just a few months ago and it was coming out on the BBC saying that motorists will be charged another seven or eight pence a liter for petrol to cut down the motoring and to help pay for all of the carbon going into the atmosphere. And yet you hear nothing, absolutely nothing anywhere in the world, against the mobile industry in terms of pollution.

Julius: No one talks about it. No one ever reflects.

B. Trower: People are scared. The mobile industries are the biggest polluters in the world. They are now responsible for more animal suffering and death in the world. They are responsible for the catastrophic events in nature like trees dying, the pollinators not pollinating plants. They are devastating the natural nature of this planet. And that is written. And it is also published that the total cost of devastating this environment, these ecosystems, I think it is something like 33 trillion dollars a year or something it could cost when all the damage is fully done. But this one industry I think is going to cause more damage to this planet than anybody has ever managed to do in any war or by any global destructive mechanism. This industry is doing it without opposition. And it is going to cause all of this. And the evidence is not just from me as a government person who is trained in this. It is from veterinary surgeries, scientists, environmental scientists. It is coming in from everywhere that this industry is responsible.

B. Trower: One of our professors here . . . he said in one of his lectures which was published that there are about 10,500 papers published showing the devastation of trees, insects, animals, plants and not a single paper out of the 10,500 has ever been commented on in the

press, the magazines, the papers, on television. And the BBC is the worst for covering this up. Not a single paper has reached the public. And I can verify that. I had a letter which I've still got from . . . have you heard of Sir David Attenborough?

Julius: Yeah.

B. Trower: Well, I had a letter from Sir David Attenborough advising me to take my information to the BBC to make a documentary. He said to contact a man called Neil Nightingale at the BBC, Natural History Bristol. I've written three times. I've phoned twice. They won't even answer. They won't phone me. They won't even reply . . . the BBC. But of course, they are pushing out Wi-Fi and mobile phones. So the BBC will not even reply to my letters. I wrote to the top scientists at the top organization in London, namely the Royal Society. I sent them the evidence and said this is critical. Can I please come and give a lecture to your scientists because look at what we have with the animals, the trees, the future of our children, everything? And I got a letter back saying we're not prepared to discuss this. Of course it is a government body. I wrote to my own university, Exeter, asking to prove it because I'm a qualified experimental physicist, university qualified. I said please let me come. I had a sponsor ready to pay all of my fees. And Exeter University which is one of the top ten in the country said never contact us ever again. I am banned from my own university. I tried six other universities. Those that replied refused to talk to me and said we will not allow this. The last university I contacted was the Open University. It has a worldwide reputation for research, academic ability. I wrote to the Open University. I said please let me do some research. I want to prove what I believe in. They asked me to send the papers, which I did. And then I never heard anything for months. And I rang up and I spoke to a Dr. Jamie Hull of the biophysical laboratories. He said we can't have you do your research here. I said . . . well, why? I'm qualified. I have the funding. What's stopping me? He said your work is political.

B. Trower: In other words, no university, none that I've approached, even my own university, will go up against the government. It is too political. So you can't do the research to prove . . . not in this country . . . to prove what is going on.

Julius: And even if you did it in a private institution, they would never say that it was enough.

B. Trower: I have two university degrees and a diploma. I'm well qualified to do this. A multimillionaire in this country said I will cover all the costs. I had a blank check. But they wouldn't do it. It's too political. And this is where we are. We have a government that controls what the universities say. And I think that is a very sad state in the world. And I know it happens in some of the universities in America. And I know it happens in . . . I think it's a Scandinavian university where people are either sacked or told not to research this.

Julius: In Karolinska, in Stockholm, Olle Johansson got the message that either he leaves or he shuts up. And they have moved him around. He's sitting in a little box now. And he cannot do anything because he doesn't get any funding.

B. Trower: There was a professor of experimental medicine in America who I've spoken to and he rang me one night and he said be careful Barrie. He said I have just lost my entire research department from that university speaking out against the mobile industry. He got a job with another university . . . but overnight they shut him down, overnight.

Julius: We also saw that happen with Professor Santini in France with the mobile towers. And Professor Meyl from Germany, he talks about free energy and scalar rays and all this. I did an interview with him last year, or actually I let him talk because he is in physics and I'm not in physics so I couldn't really say anything intelligent. But he said he wouldn't talk about the mobile phone industry . . . but he talked half an hour. Barrie, I remember when I go to Copenhagen that I hate being in the big cities actually . . . I prefer the countryside with nature and animals and so on . . . but normally I get tired (in the city). And I also get very warm. Could that be due to the heavy CO2 so that there is not enough oxygen? So, therefore, you get exactly that . . . tired and you get more and more apathetic and spacey?

B. Trower: Well it could be due to the CO2. It could also be due to . . . that maybe you are becoming sensitive to microwaves.

Julius: Not really.

B. Trower: But you wouldn't know if you are becoming sensitive. There is no way for you to know. Unless you go somewhere where there are no microwaves and you recover, you wouldn't know. And this is one of the problems.

Julius: But I stay only in places where there are no microwaves.

B. Trower: Then you're okay.

Julius: I stay with the computer sometimes fifteen hours a day without problems.

B. Trower: But I mean carbon dioxide, carbon monoxide poisoning yes, certainly.

Julius: Yes, so that's exactly what is happening. And people are becoming so . . . it is sad for me because I say we need to do this. And they say oh you tell us what we need to do and people resist. I try to free them from this. But that is what's happening. It is too much CO2 from the wireless.

B. Trower: But what I can't understand is why these people have so much power. I mean people in government must now realize what is going on. We have kings, queens, the people I've spoken to . . . they all realize what is going on. The people themselves realize what is going on. I was in court once trying to argue against the Tetra and at that time there were some ninety other places in this country fighting Tetra. So people know what's going on. They know the harm. But nobody is able to do anything. And that is what confuses me.

Julius: I've been through all that too. What I see is when people become so influenced from this technology and lose their energy, their vital energies, they become automatically fearful. And being in fear they cannot take action. And then again, they are all dependent now on income, two incomes, because their houses have gotten bigger and bigger and bigger, because people have gotten more materialistic. So now they're so dependent. And in times when we have recession, or depression, or whatever, the ones controlling . . . they have the power because the other ones are afraid of being sacked . . . because by the (inaudible). I would have a very bad taste in my mouth if I were the receiver of that because how can you resist this and say it is about children. It is about coming generations. They just do this because they need their money.

B. Trower: When I spoke earlier of the birth defects and the genetic defects in children, it is the birth defects and genetic defects of every living thing. We're talking in the oceans, plant life, trees, animals, even slime mold in the soil because when you get down to the DNA it is all the same. There is no difference between slime mold DNA and my DNA in terms of the atomic level

and how it is made. There are different genes and different chromosomes at work but when you get to what they're made of there is no difference between all of them. And they are all affected, every single living thing on this planet is affected by the microwaves, everything.

Julius: But when you talk about GMO and how Monsanto from the U.S. is pushing that through, then it might look like a genetic experiment they are running here on what we call life, the normal life, the human life and everything, it is actually being re-programmed . . . it is being changed so we can only eat things now in the future that *is* GMO. And everything is becoming so synthetic in this world. We will change it next year.

B. Trower: What confuses me is the people. I wonder whether the people up there, whether they think that once they've destroyed the planet that there is a spaceship that is going to take them somewhere else to live because they have to live here too. And this is what confuses me . . . do they actually know what they're doing because what is the point of ruining a planet when you've got to live on it? So I can't understand where they're going.

Julius: If you look at the picture . . . you have in the background . . . they are not reaching out for the true God. They are not connected to the true God.

B. Trower: But they must realize that if they want to be wealthy and powerful you can only be wealthy and powerful if there are people who are poor below you and people who do what you say below you. And if you make them all sick or you destroy the infrastructure of the planet so there isn't enough food and there are riots and they're all going to come after your palace or something, I can't understand their mind . . . the way they're thinking.

Julius: They have a sick mindset.

B. Trower: Possibly a sick mindset.

Julius: We're living in a psychopathic control grid of society and most of the people on top . . . they are psychopaths. And they have all the tricks and they are coldblooded. They will kill you and I without blinking their eyes because have no empathy.

B. Trower: I know they are prepared to kill people. In the experiment I said earlier with the servicemen, they had 20,000 servicemen most of whom died. With Tetra we're probably looking, I don't know, 100,000 people may die of brain tumors. We've got 7,000 in this country.

B. Trower: If we've got 7,000 in this country and there are 150 countries and this is after ten years, I mean there's a colossal amount of people going to die.

Julius: It's a big business.

B. Trower: Yeah, I mean once we start ruining our trees and the bacterium that we need for our food webs and our food chains, they probably can't see that far ahead unless they've got some other plan. But when I'm speaking, I often say, do the decision makers here think that the bus stop outside the building here is going to take them somewhere safe because there isn't anywhere safe.

Julius: They have very short term . . . and actually sometimes I think we shouldn't think they are too clever, the ones in government and the ones that make decisions, because they lack something . . . ethics, morality and conscience. So you could say why should they rule? They're not really human because if they were they would not be doing destructive things. They would know that everything they do to us they will have to live through it themselves.

B. Trower: I totally agree.

Julius: I have confidence . . . I think we should come back to that tomorrow.

B. Trower: By all means. And I mentioned this when I spoke to the World Foundation for Natural Science. And I went into this. Maybe with the court cases, I have two big court cases next year, one trying to protect children and one trying to stop Tetra. If I can win those, maybe we can get somewhere.

Julius: Yeah, and the video we do here, I will do what I can to make this go all over the world. And I will talk to some people in Denmark. I know there is an old woman there, and she might because she's very caring about her ranch people and so on, and you know it is the elderly people, they understand where I come from. When I talk to the people at my own age . . . I'm forty-one . . . they say oh, give me an iPhone. They don't reflect. But the elderly people, sorry, I don't mean elderly, but over sixty, still have the connection to the real human values to what it is to be a real human being.

B. Trower: I said this. I've said it many times. It is what I call the silly boy syndrome. People in power who are really immature, silly boys, and I put a lot of my government there. I mean our prime minister is only thirty-something and we have what I call silly boys. They're coming out of university with electronic degrees and they're inventing boxes that will transmit microwaves for children and they do this and they do that. And they put all the pulse frequencies into the waves because the microwaves now don't serve . . . they have to add pulses for the color, the speech, the movement, whatever. And with all of these things not one of them has contacted me or somebody like me to say I want to put a pulse frequency of 18 pulses a second in the microwaves. Will it affect anything or will it do anything or should I change it to this? Not one in all of these years. They don't have the forethought to say well hang on. There are people alive that were in the Cold War and knew the spies and knew the microwave weapons and knew what was going on and spoke to these people. Let's just check to see if what we're doing is safe. And they don't. They just make a box and put it on the market.

Julius: Then again, I ask because when you look at how fast all the new technology has come you can hardly buy a device that the next day there's a new one. And I just think there must be someone guiding this so called development because it is so extreme what comes. So there must be a higher script in the background saying we need to develop this and this and this because we need to implement that payment in the future is by the mobile (phone) and it is all implemented, bus card. You use a mobile phone. That's in Denmark. They are implementing everything so soon we will not be able to use cash . . . only mobile phone. So we will be forced to use the mobile or don't use anything. So I prefer the last thing.

B. Trower: I don't have a mobile phone. Yeah, I just totally agree with you. They have no idea what they're doing, absolutely no idea what they're doing these university graduates.

Julius: It's not even rude to say that they are ignorant because they seem to have forgotten. They have some kind of education but they need the very important one.

B. Trower: But even here, churches are putting mobile transmitters in their towers. And the church makes, I don't know, a quarter of a million pounds per year or whatever because you have a nice transmitter inside the tower. And people with phones they can download pornography. And they're using the church to download pornography and crime.

Julius: It is a good metaphor because if we see that the church is now making money from the mobile phone industry then there's a saying that you cannot serve God and mammon at the same time. And what we're seeing today is actually that the church is being destroyed. The spiritual part of the church and that's also what the same agenda is about. Therefore it is important that we walk with the flag and keep walking because no one is going to change this.

B. Trower: It is a sad state. I think it has got to be stopped somehow.

Julius: We've got one year and we will make it because you have your trials coming. We make this and this will be spread.

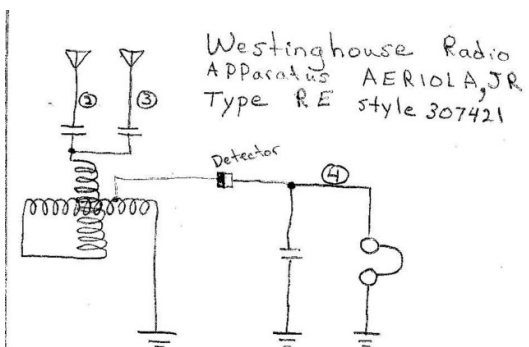
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Radios Of The 2010 First Final Farewell DX Contest Contest Entrants

Page 3

Sean Whiteacre, Hobby Class Entry





Made in June of 1921

- ③ This post is for stations below 350 meters
- ③ This post is for stations between 350 to 500 meters
- ④ Terminal 4 for headphones

The Antenna taps are for selecting the frequency coverage of the radio not for tuning the radio for better reception.

The radio is a Westinghouse Aeriola, Jr. I did not use a regular diode, but the real detector on the radio. The "Perikon" detector uses two rather rare minerals; Bornite in the fixed cup and Zincite in the movable section. Anyways I used the Perikon Detector. I also used the original 1921 C.Brandes Superior headphones from 1921.. Antenna was 25 ft in air and 150 ft long, Inverted L type.

Kevin Norton, Open Class, Loop Class and Active Device Class

I used the K-3 Big Litz Dx Set for the Open Class. It was the same set up as last year. For the Loop Class, I used a low Q loop built on cardboard box.

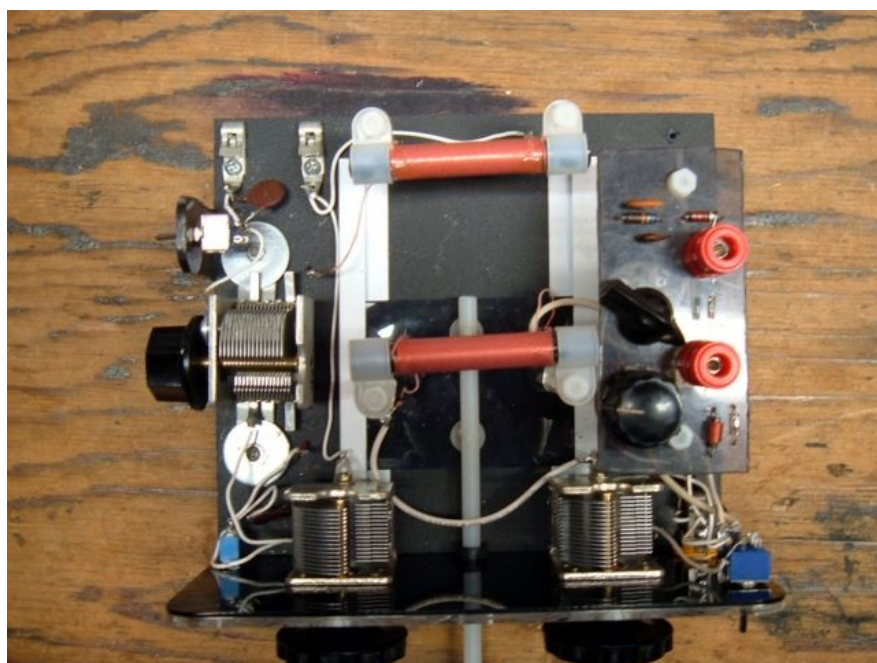
The Active Device Class entry was a WN6Q MPF-102 Regen (Via Owen Poole). I originally tried this as a double tuned set using 2x 660/46 ferrite assisted air coils, 4 gang ceramic wiperless variable caps, and a Litz air tickler. The regen set worked well, but was very hard to line up and very touchy. When the antenna tank was removed the set worked MUCH better! It still WAS a regen, and therefore still had a few flukes. It was MUCH more tamed, and Dxing became much easier.

The sets radiation was read off of my Icom R-70, so digital spotting was a snap. The final version was a single tuned tank of a ferrite assisted air coil, a 4 gang ceramic wiperless and crystal earphones in parallel. The antenna was VERY lightly coupled via a few insulated turns of a gimmick capacitor. At times, I could zero beat the set simply by turning my head a bit to one side!

I copied SOMETHING (anything from beat notes to ear splitting locals) on nearly EVERY frequency out of the 119 channels. Maybe 90 stations or more of at least very weak audio or better.

FWIW, I made a big boo-boo and left the set in place during a vicious white out snow squall. We had very high winds and blizzard type of snowfall rates. The antenna kept discharging arcs every 5 or 10 seconds. They could be heard in the next room. By the time I realized what was going on, it was too late. I pulled the antenna line off and measured the arcs, which by that time were down to around 3/4". To fry the set in the position it was in, they had to have been at around TWO inches (30 Kv??) to bypass the gimmick cap twists and leap to the set. Needless to say, a new FET had to be installed. Live and learn.

Glen Yarbrow, Open Class



The set used was a Litz Special, modified to [Dave Schmarder's #44](#) wiring configuration. The antenna was 250 feet long and 30 feet high. The ground consisted of two 8 foot ground rods.

The set used an 1N34A diode and 4K Navy headphones. No wave traps were used. The spotter radio was a Realistic DX-60 with a frequency counter.

[Continued on Page 4.](#)

Select Menu

- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)

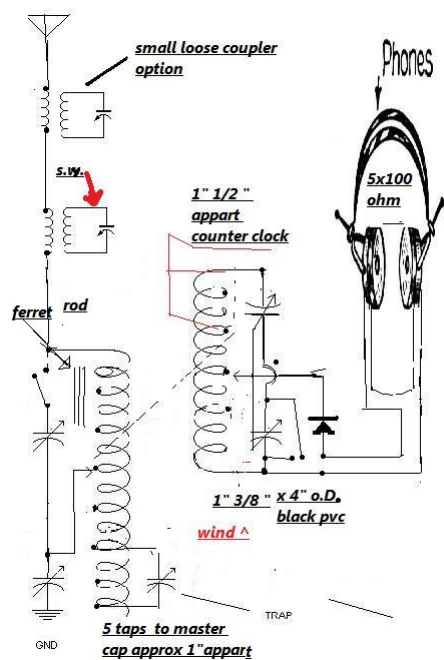
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Radios Of The 2010 First Final Farewell DX Contest Contest Entrants

Page 4

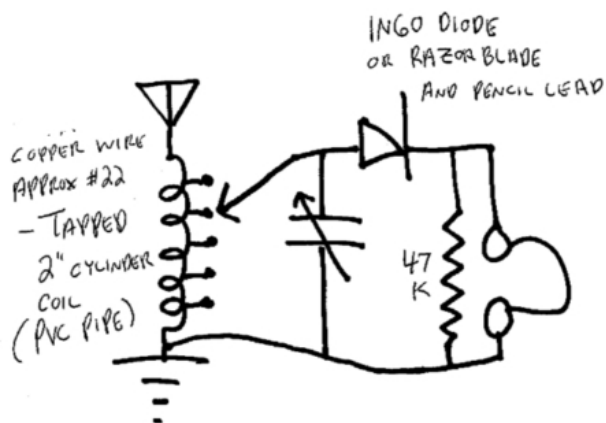
Dan Denapoli, Open Class and below BCB Class





Chris T, Hobby Class





Dave Schmarder, Active Device Class



[Click here](#) to go to my website and see what I did this year:

- [Single 7C5 Loctal tube](#) regenerative radio with 6 volt filament and 25 volts DC plate
- Two tuned circuits using toroidal forms. Single tuning control
- Sound powered headphones
- Antenna, 40 meter wire up 3 - 4 meters running east to west.

Robert Weaver, Active Device Class

This year, I have two different active device receiver entries. One is a direct conversion receiver using a sheet beam tube, that I built two years ago, and used in the Radioboard summer DX contest in 2008, but never in this contest. Shortly after I built it, I built a sheet beam superhet receiver and the direct conversion receiver was mostly forgotten. I wanted to dust it off, make a few improvements and enter it in another contest. It took a while to get to it. So, I began the contest using the same superhet that I entered last year. That receiver is completely unchanged, and you can find a description of it under the 2009 entries, or see the [writeup on my webpage](#).

The direct conversion receiver has a tuned front end to help reduce interference from strong local stations and out of band signals. The signal enters the control grid and is mixed with the oscillator signal which appears on the deflectors. The result is an audio signal which appears as a differential signal on the plates. This audio signal drives the push pull primary of the interstage audio transformer. The secondary is connected back to the control grid in series with the incoming RF so that it is amplified reflex style. The resulting amplified audio is now a common mode (in-phase signal) at the plates, and so has no effect on the interstage transformer, and passes through the primary winding and on to the output transformer which is in series. The secondary of the output transformer drives the headphones.

Feedback for the local oscillator is taken differentially from the plates, through an audio blocking capacitor to the primary of the oscillator coil. One half of the secondary of the oscillator coil forms a tuned circuit with one gang of the variable capacitor. This side of the secondary drives one deflector, and the other half of the secondary produces an opposite phase signal to drive the other deflector. This oscillator is very stable and is almost completely immune to pulling towards the incoming RF. In fact this is a bit of a disadvantage, because it makes it very touchy tuning in AM signals without getting a beat frequency.

In the first version of this receiver, I had included feedback from the cathode to a one turn tickler on the RF coil, to provide a small amount of regeneration. However, after making a number of modifications and tests, I finally concluded that there was little to no benefit. So, I finally removed it. [A description of the receiver is here.](#)

There is a DPDT switch which reverses the phase of the interstage transformer secondary. This is to correct for slight unbalances in the tube which could cause oscillation when the volume control is turned all the way up. There is a bit of phase shift that varies across the band, and so the best position of the switch changes at different frequencies. I had tried various other plate balancing techniques (such as in my superhet receiver) but found that nothing worked as well as the reversing switch.

The receiver worked reasonably well. It was built as an experiment to see what could be done with a sheet beam tube. If you read the write up on my website, I sounded much more enthusiastic right after I built it. However, nearly two years later, and having built a better receiver in the interim, I find that listening to AM for any length of time on this set can be tiresome with the touchy tuning and almost constant beat tone. So, after using it for a couple of days and logging a respectable number of stations, I retired it and switched back to the superhet which outperforms it in almost every respect.

It seems that each year, I manage to learn a new trick or two. This year, I connected a set of wavetraps between my loop antenna pickup coil and the receiver. I wasn't sure how wall wavetraps would work with the loop. But, using the antenna orientation to null out a local station on 860kHz, and then using two of the wavetraps tuned to the same frequency to further null it out, I was able to log my first station ever on 870 kHz: WWL New Orleans, which by the distance/power formula was my second best catch of the contest. My best catch was KVNS 880, Brownsville TX. Attempts to log a MW station outside of North America have failed so far. Hopefully, one of these days it will happen.

[Return to the index page.](#)



Select Menu

- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [1AD Contests](#)
- [1AD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

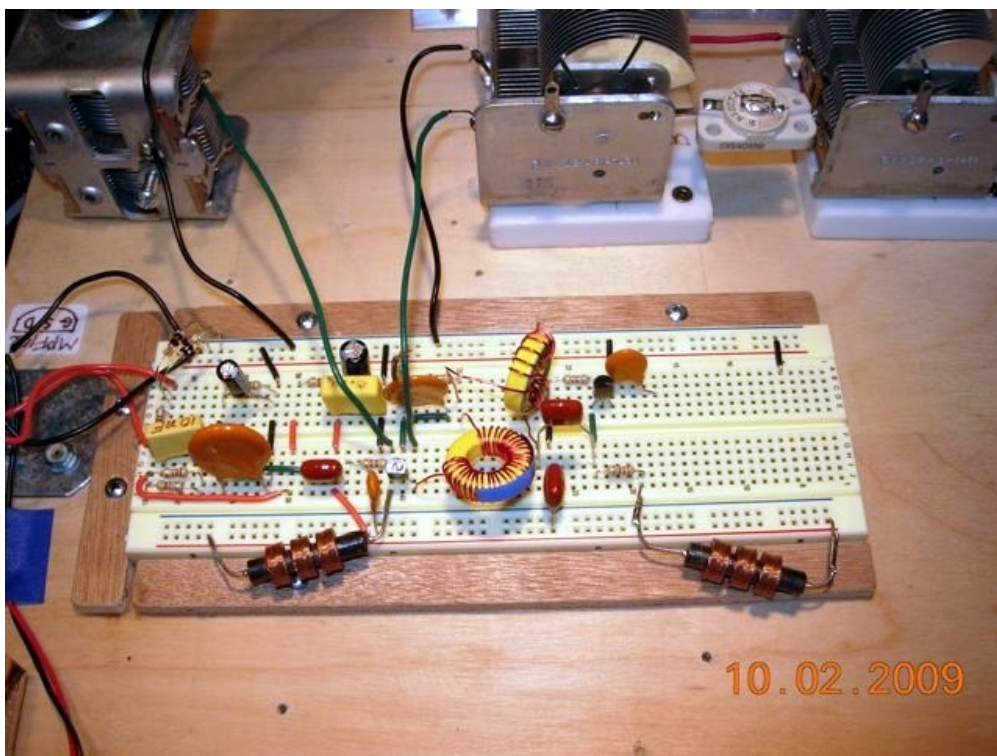
- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2009 Contest Entrants

Page 5

Dan McGillis, SW Class (regen set)



Thanks again for letting me enter my SW regen (with it's Radio Shack amplified speaker) in the '09 Sprint contest.

The contest gave me the needed nudge to really exercise the receiver and learn about it's strengths and weaknesses. I only tuned a lower CW portion of 40m (7.025 - 7.070 MHz) but there were hundreds of stations that could have been copied over the weekend period. Turns out there was a PA QSO party and a FISTS contest part of the weekend also. So there were weak and also extremely strong signals everywhere.

But I wasn't in the contest to score lots of points. I wanted to evaluate the receiver on weak & strong signals, so I restricted my station search to those calling CQ, especially the weak ones next to strong signals.

[Click here for a link](#) to Dave Schmarder's RadioBoard with a schematic and discussion of the radio.



Dave Schmarder, BCB Class (crystal set)

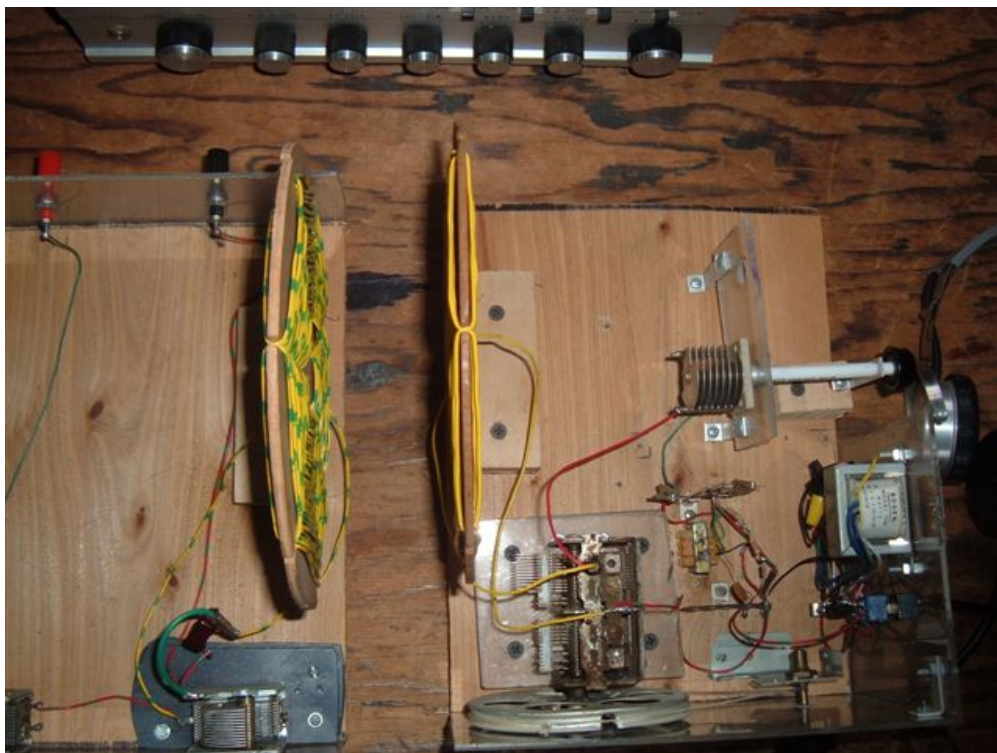


Here is the link to my [contest entry](#). I just put up the Google map, so the page is now ready. I received 73 stations in the contest on my #76 crystal set. I had fun using my band pass radio. The outcome was better than I had expected.

Glen Yarbrow, BCB Class (crystal set)



Dave's crystal radio #44
Headphones: Navy 4k
Diode: 1n34a
Antenna: 300 ft long wire



Gary Nichols, BCB Class (regen)

I was using a single J310 regen with a B+ of 4.5V. My tuning range was a bit below and above 680 and 1320. I forgot to measure it and I've already taken some of the set apart in preparation for mods.

The restricted tuning range was due to the 30-145 pF ARC 5 variable that I like to use because of the really slow and precise worm drive. The set was a bit of a last minute effort, so I gave up on extending the range. I had plenty of stations to listen to anyway. My problem was that it seemed more difficult than usual to ID stations based on the info broadcast. There were a lot of games on over the weekend evenings and also the usual "sports talk" stations which are as bad as Radio Disney to identify, it seems.

I also forgot to listen for my area stations during the day! Ooops!

The antenna was about 50 ft of wire sloping to the ground from a 2nd floor window (10 ft of it inside). I sloped it south-westerly for possilbe best performance from my location here in the northeast near Syracuse, NY. My ground was the nearby 2 draw metal filing cabinet. One time I sat down to listen and noticed more than the usual hand capacity. I quick check and I realized I hadn't hooked up the filing cabinet!

I used a "Bringhurst String" (5.6, 10, 22, 47 pF) of "clip selectable" fixed series caps between the antenna and top of the L/C to control signal strength and "pull" the tuning a bit up and down band.

James Kearman, BCB Class (regen)

My receiver was a homebrew solid-state regen, the one [shown here](#). I used a homebrew air-core loop, 14-foot circumference.

Sean Whiteacre, BCB Class (crystal)



The diode is a FT-205 Type. I used Dynalec Headphones and RCA Large Can Sound Power headphones.



Jack Bryant, Two-way Shortwave Class (regen)



I participated just a bit in the contest. I started Sunday night and made a two contacts and then one more early in the morning. The set you see was "rescued" from the Shelby, NC hamfest a few years ago. It was beautifully made with a plexi-glass case and painted front. It was sold as a non-working unit. I hated to see this fine construction job go to waste. The rig had a two tube crystal controlled transmitter and a two tube receiver, all in one package.

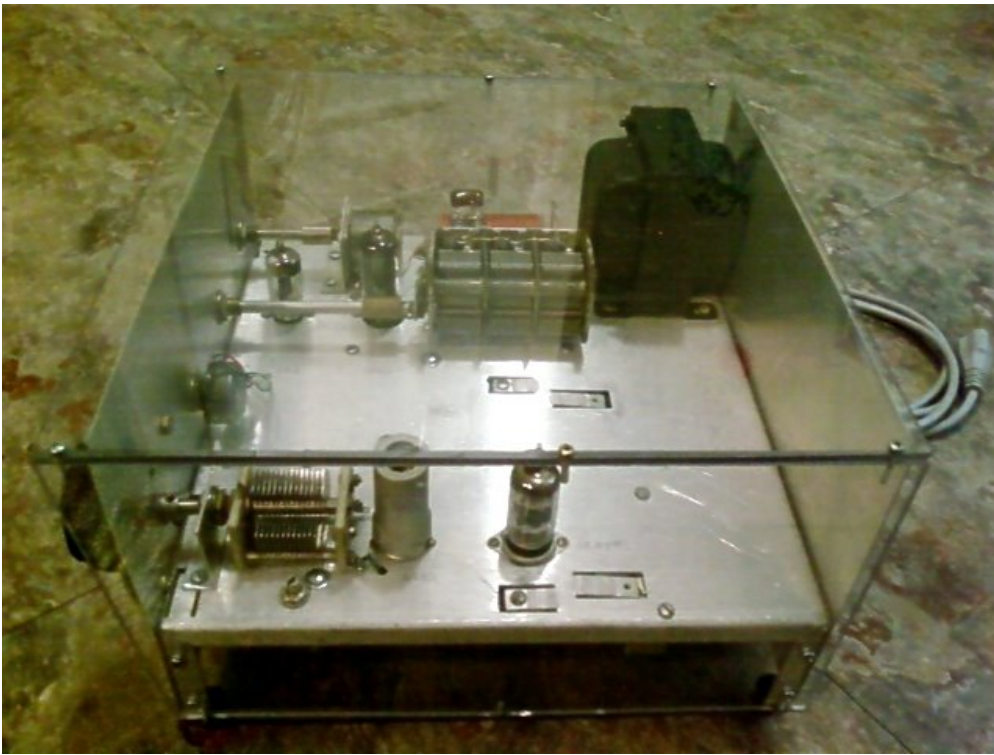
The receiver did work but covered about a 3 MHz tuning range. The vernier was a tiny one. I swapped it out for a NOS Velvet Vernier. The tuning range was narrowed down considerably, now covering roughly 3.500-3.508 MHz. I changed the top coupled detector antenna cap to 1.5 pf. The plate voltage on the regen detector was reduced from about 130 volts to 22 volts. The power cord was changed to a three prong cord.

The change in receiver performance is dramatic. The receiver is now very usable. I wanted some additional selectivity, so I put a .005 uF cap across the primary of the audio output transformer. I fed the audio output into my PC and used the Spectrogram program to check out the bandwidth. The audio peak is between 400 and 800 Hz, just right for my ear. The tube lineup is a 6CY5 detector and a 12AX7 two-stage audio amp.

The transmitter initially did have some output, but it was acting strangely. It turned out that the pi-network output of the transmitter had to be redesigned. It worked, but with an output at 40 meters instead of 80 meters! Some turns were removed from the coil and new fixed capacitors were installed. The output variable cap had to be changed as well. I had to fabricate a mounting plate so the existing front panel hole could be utilized.

Now the transmitter puts out 10 watts (plus or minus). It is sensitive to the type of crystal used. For the contest I used a small surplus 3.547 MHz crystal installed in an old FT-243 case. It worked great. The transmitter uses a 6C4 oscillator and a 5763 power amp.

This rig looks a Novice station project, perhaps from an old ARRL publication; however, I have not found a schematic for it yet. The station does work well. It drives either phones or a small external speaker.



Go to [2009 page 6](#).

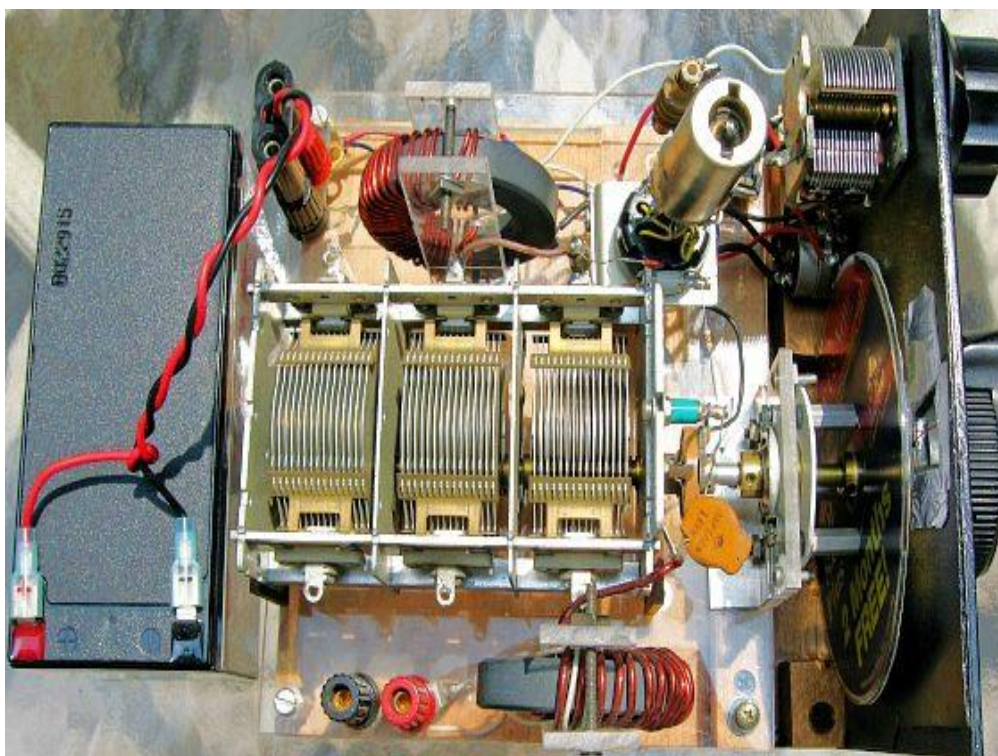
Select Menu

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2009 (Sprint) Contest Entrants

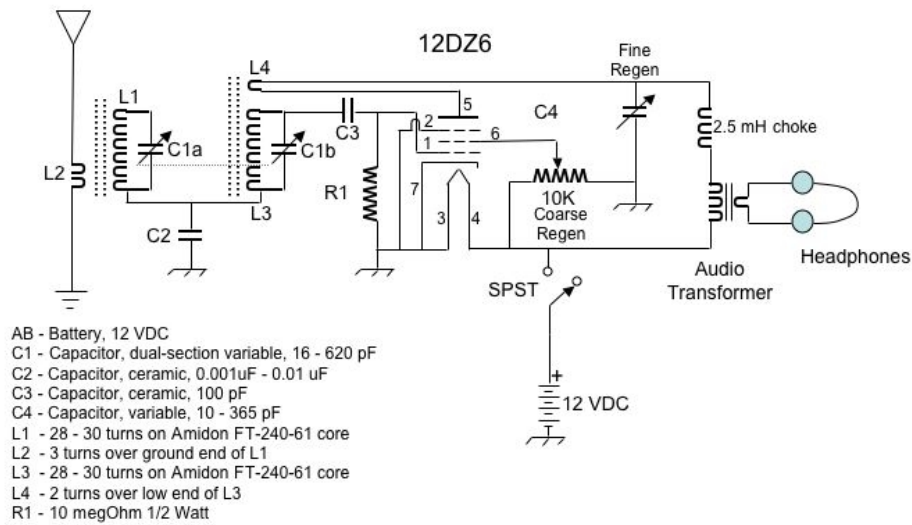
Page 6

Lem Morrison, BCB Class (regen)

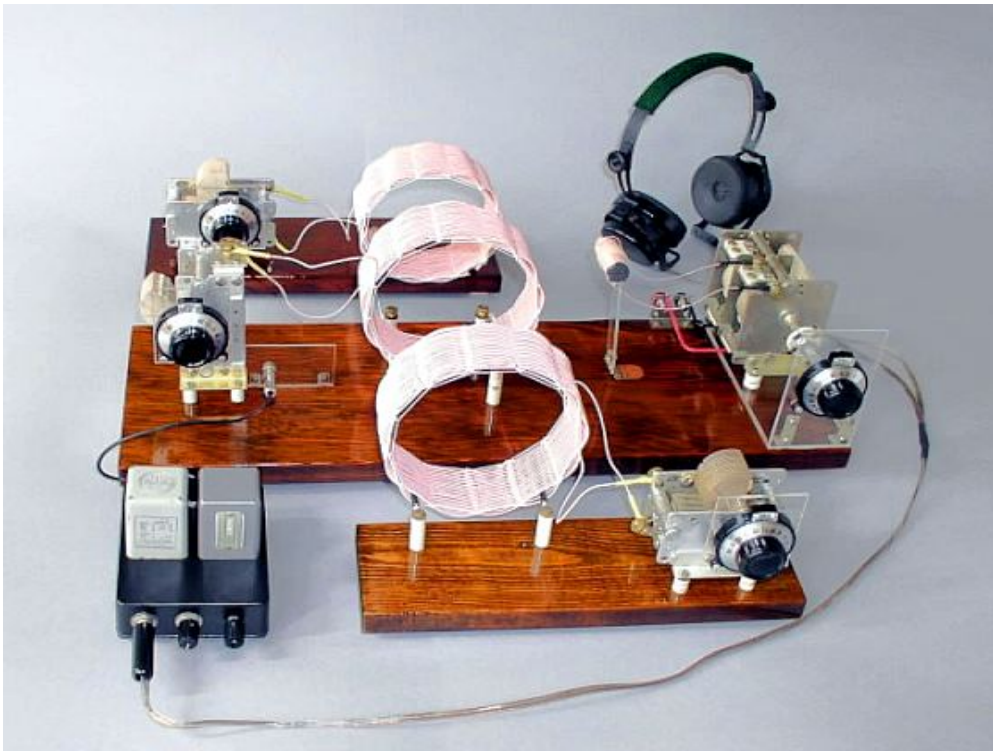


My receiver was a homebrew Regen using 12DZ6 in double-tuned circuit, coax-fed T antenna.

N4AHJ ONE-TUBE (12DZ6) REGEN SET

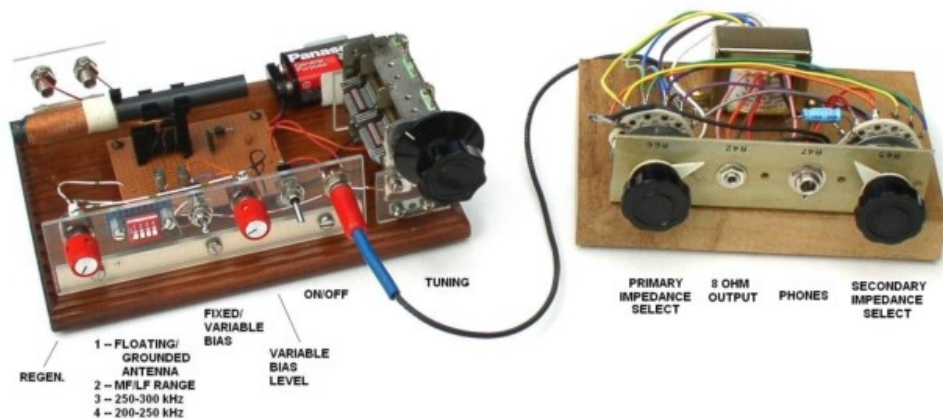


Mike Tuggle, BCB Class (crystal)

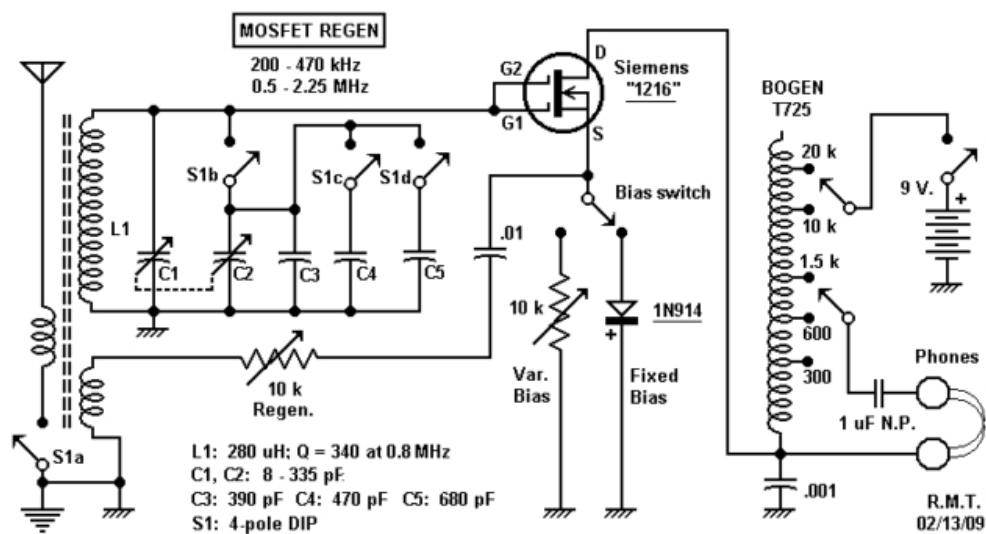


Lyonodyne-17, double-tuned, 12101 3RT detector, two wave traps, RCA Big Cans

Mike Tuggle, Below BCB Class (regen)



Set is same as used in 2009 IAD Contest.



Jack Ivey, BCB Class (crystal)

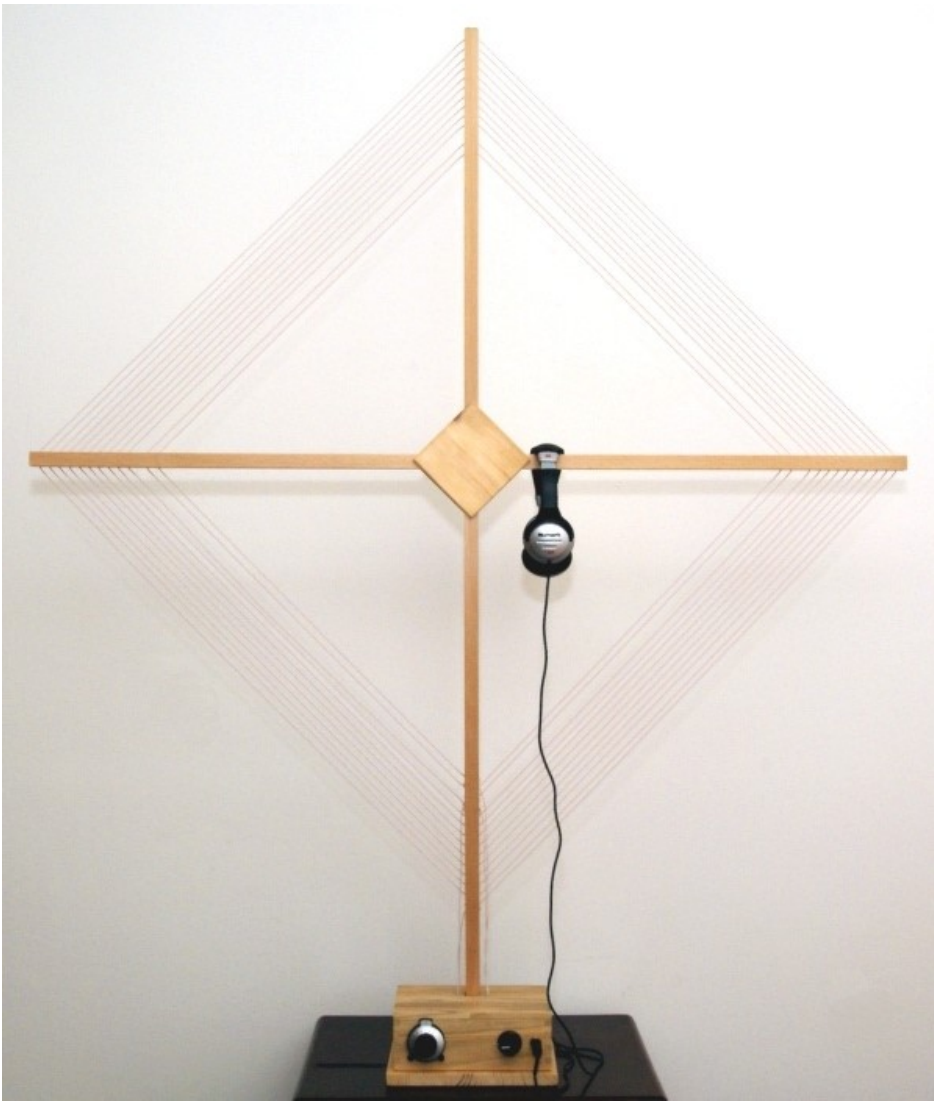
Equipment is a dual-tuned radio with spider coils of 175/46, Ge diode detector, Bogen matching transformer, modified balanced armature headphones, with a 250 foot C-shaped antenna about 8 feet above ground, #14 wire.

Kevin Norton, BCB Class (crystal)

Receiver was the "Crystal Commando". This set is a three coil Tuggle set w/cotton basket weaves. The det coil has ceramic var cap, all others are bakelite. Det. was FO215, w/ series crystal earphones. This set played VERY sharp at times . It can tune the upper part of the band in a wiper less configuration. Despite it's simple design I think the reason it worked so well was due to care in construction (i.e., component spacing and insulation). I wanted to take a step back from big litz and just see how well a simple set could be made to work.

Overall I quite happy with this set.

Ralf 'Brösel' Siemienieć, BCB Class (crystal)

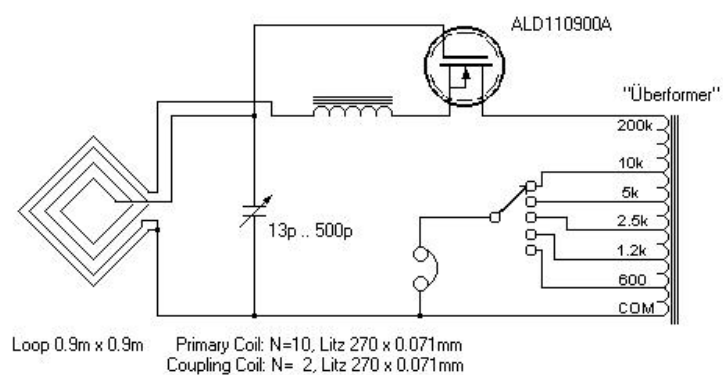
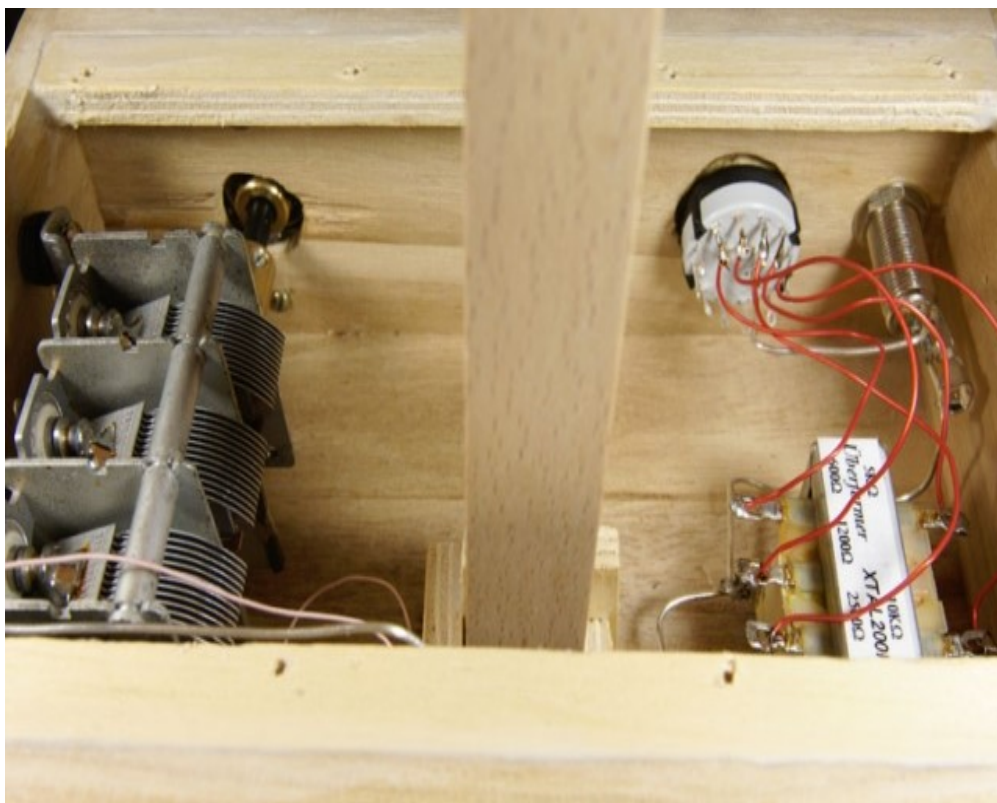


For this years sprint contest I was curious about how my reworked loop antenna crystal radio performs. For this loop having a spiral loop design, I increased the size to 0.9m x 0.9m. Since the litz wire used before (150 x 0.04 mm) was not that much rugged, I switched to a double silk-covered 270 x 0.071 mm litz wire with an outside diameter of about 2mm. The air variable is a good quality three-ganged device with ceramic insulators, but just one gang is used. Tuning is done with help of a 9:1 vernier dial which is coupled by a plastic extension to the shaft of the variable cap. The air variable cap is isolated against the wooden box while the box itself is mounted head-down on a wooden base. The loop construction is also attached to the base although mounting all things together is a bit more difficult this way.

In difference to all loop antenna sets I know so far I decided to use one of the zero-voltage MOSFETs (ALD110900). The gate is directly connected to the hot end of the tank circuit; the only problem left was how to feed the source. There are basically two possibilities – connect the source via a capacitor or via a coupling coil. After making a simple spice model of the measured characteristics of the MOSFET and doing a number of Pspice simulations I found it is more advantageous to use a coupling coil. After finishing the radio I found that there were some annoying FM ghosts which are probably caught by the coupling loop. To get rid of these I added the FM choke. Matching to the headphones is done by a “Ueberformer” from Dave Schmarder. In the contest, I used a pair of sound powered phones with USIC elements from Dynalec (note that the photo shows my “self-made” phones with rocking armature elements made by Racal. The phones with USIC elements are a bit more sensitive, but the shown phones are very lightweight and comfortable).

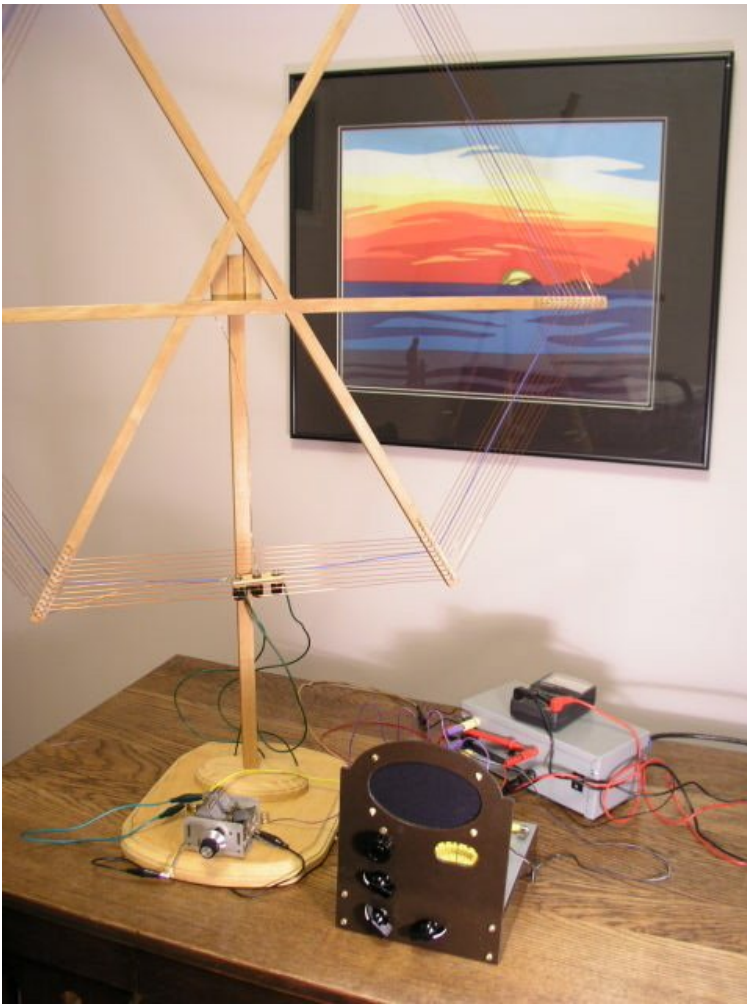
The loop does perform very well and is surprisingly sensitive. Selectivity is quite good for a single-tuned unit, especially at the low end of the band. Tuning is rather sharp, therefore the vernier dial seems to be a “must have”. What I like most is the clean sound. I found no distortions so far even in case of strong signals.

Here is a Google [map link](#) that you might enjoy viewing.



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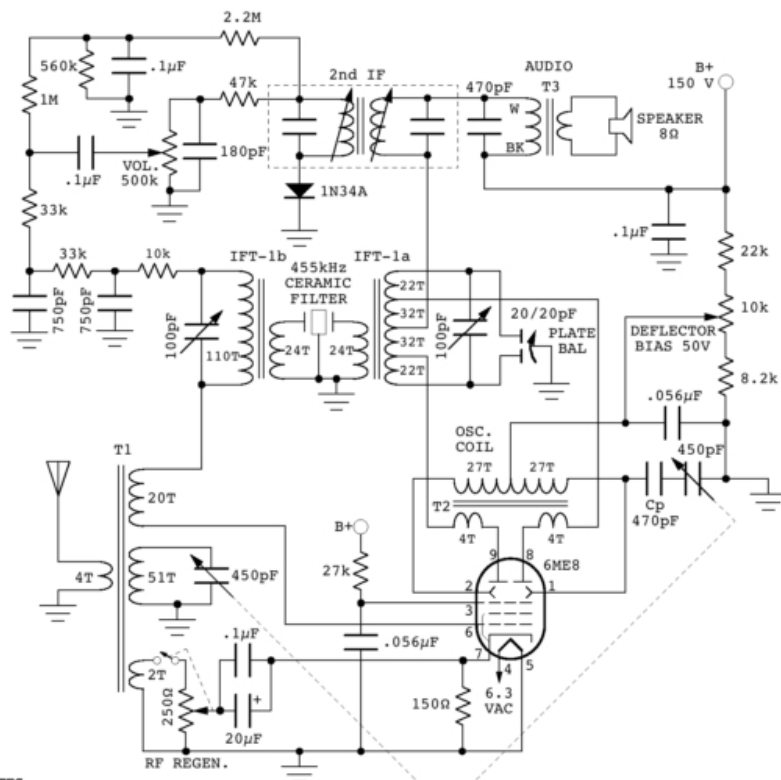
Robert Weaver, BCB Class (superhet)



- 6ME8, 1AD superhet
- 30 inch diameter Tuned loop
- Used in the 2009 1AD contest (more info is shown in that section of the website).

ONE TUBE DOUBLE REFLEXED SUPERHET RECEIVER

R. Weaver, January 2009



NOTES

1. PLATE BALANCE DIFFERENTIAL CAPACITOR FUNCTIONS AS REGEN CONTROL FOR IF.
2. BOTH SECTIONS OF THE TUNING CAPACITOR ARE EQUIPPED WITH TRIMMERS, BUT ARE NOT SHOWN ON THE SCHEMATIC. TRIMMERS ARE ADJUSTED FOR BEST TRACKING;
3. Cp IS PADDER CAPACITOR. 470pF IS OPTIMUM VALUE FOR 540-1700 KHZ TUNING RANGE USING 450PF VARIABLE CAPACITOR. IF TRACKING IS UNSATISFACTORY WITH FIXED VALUE, AN ADJUSTABLE TYPE MAY BE SUBSTITUTED.
4. DEFLECTOR BIAS IS ADJUSTED FOR MAXIMUM OSCILLATOR AMPLITUDE (MEASURED WITH SCOPE AT 6ME8 PIN 2) WITH TUNING CAPACITOR SET TO MINIMUM FREQUENCY.

INDUCTORS


- T1: FT-82-61 FERRITE TOROID WITH TURNS AS INDICATED (#28 AWG ENAMELED WIRE), 2 TURN TICKLER IS WOUND ON TOP OF THE GROUNDED END OF THE 51 TURN TANK WINDING;
- T2, IFT-1a, IFT-1b: FT-114A-61 FERRITE TOROID WITH TURNS AS INDICATED (#28 AWG ENAMELED WIRE);
- IFT-2: GENERIC 455 kHz 2nd IF TRANSFORMER;
- T3: BOGEN T725, 70V LINE AUDIO MATCHING TRANSFORMER.

Curtis Gamble, BCB Class (crystal)



I just used the two modules with the plexi-glass fronts and no traps.

Back to the [main index page](#).



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- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)
- [2006 Page 1](#)
- [2006 Page 2](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2004 Contest Entrants

Page 1

Lou Dayich



I have attached a photo of the set that I used during the contest. Daryll Boyd posted a picture on his site. I humorously called it "The Bondini". The most interesting feature is that this uses 4 inch basket weave coils with 9 points- double tuned.

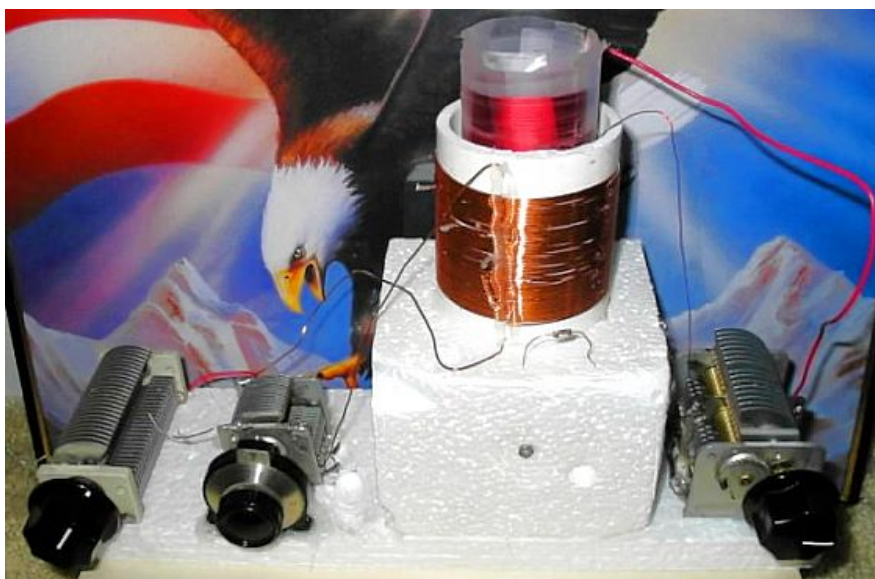
The wire is 2 solid strands of twisted wire. I use a schotty diode and sp phones with a Bogen matching transformer. I wired it in as many combinations of coil and cap as time would permit.

Bob Jewell



Here is Bob's DX set.

Alex Perez



Hobby Class Single Tuned Crystal Radio Capable Of DX My antenna consists of 70 feet of 18 gauge plastic insulated tinned copper wire oriented in a North East and South West direction with the lead in pointing North East. The far end is elevated over 40 feet while the other is only 12 feet high. A cold water pipe ground connects to the receiver via 15 feet of insulated 14 gauge solid copper wire.

A 250pF ceramic frame air variable capacitor couples the antenna to the receiver. The tank circuit is composed of a 365pF phenolic insulated air variable capacitor and a coil of 60 turns of 21 gauge wire wound on a 2 $\frac{3}{4}$ inch PVC form. It is tapped at 30, 40, and 50 turns from the ground end.

To combat the QRM generated by WXEM, only a mile away, the wave trap has to be closely coupled to the tank circuit. The trap is composed of a 250pF phenolic insulated air variable capacitor in parallel with a 60 turn coil of 26 gauge wire on a one inch diameter form.

Best sensitivity and selectivity is obtained with the 30 turn tap. Usually a single Philmore crystal earphone and a selected germanium diode were employed. Some improvement was noticed when using two earphones in series, probably a better impedance match.

I attribute my success with such basic equipment to mostly quiet RF environment, many hours spent DXing, and listening well into the night and the morning on one occasion. Furthermore, I was fortunate to acquire some high scoring stations. Somehow I heard two different stations on 630 25 minutes apart. WAVU was only 203 kilometers away but running a mere 28 Watts! Still, this does not compare to KEYH on 850. It was 1,211

kilometers away and transmitting at a power of just 185 Watts! The remaining acquisitions were locals, 50 KW Clear Channel, or not too distant 5 and 1 KW stations. I received one Canadian and one Cuban station, both 50 KW. The furthest catch was WBZ, Boston. A station on 1260 identified itself as Radio Disney but I was unable to obtain a call sign. Out of three possible candidates, I am fairly sure it was WWMK. Using a spotter set to ascertain direction, the station was either from Chicago or Cleveland, certainly not Boston. 5,000 Watt DX from 800 kilometers away is certainly not uncommon for me, but anything else would be. Besides, I did log a few stations running 5,000 Watts from Ohio.

Alex Perez
KG4IHN
Age 15

Evan Haydon

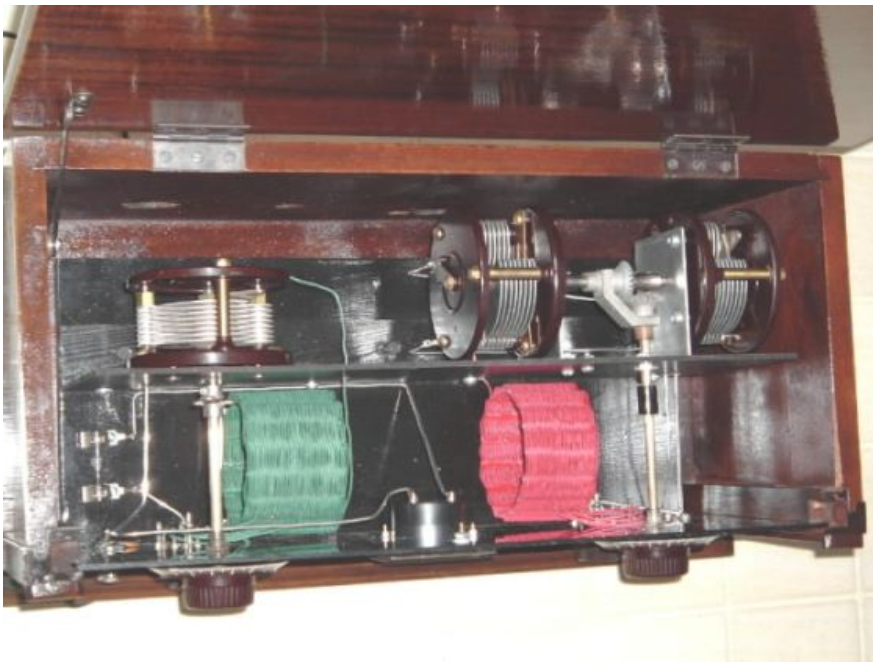


My crystal radio is a design that has evolved after many years of searching for a good design. Most of the ideas used in this radio came from internet sites. No litz wire here. Just old cotton covered 20 gauge wire wound in a basket weave form. No sound powered headphones here. Just my trusty old magnetic Trimm Dependable's.

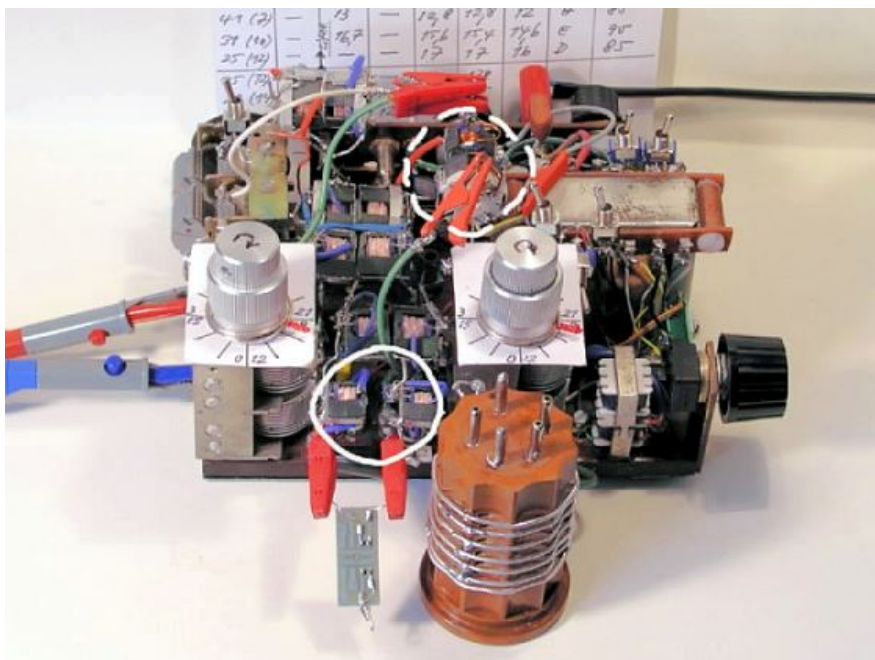
Yes, the meter is in the circuit all the time. It is a 50 μ A movement in series with the headphones. It is helpful in maximizing design of the circuits, selecting the best crystal to use, and in tuning taps and caps for maximum signal reception. It indicates carrier strength of the received signal. The carrier contributes nothing to the audio heard in the headphones. A signal of 1ua is 100% readable. One local station gives a reading of about 500 ua.

My antenna is 18 gauge solid magnet wire. It is basically a Windom antenna that is insulated at the supports which are at the ends and at the lead-in point. It is 180 feet long and runs due east and west. The wire to the receiver comes off at a point about 60 feet from the west end and is about 55 feet long. The lead-in take off point is up 36 feet with the ends up about 24 feet.

The radio is made in a 20's battery radio wood cabinet. It uses three Atwater Kent variable capacitors. It uses Atwater Kent knobs with two sets of antique switch points mounted on a black plastic front panel. Genuine Atwater Kent copper emblem at the center top of the front panel. Antique connectors are on the front panel for antenna and headphone connections. Wiring inside is all by 16 gauge bus bar. 1N34A diode. The primary and secondary coils are 4 1/2 inches apart with no electrical connection between them. I have not found a trap circuit that helps enough to talk about.



Berthold Bosch



2004 XSS DX Contest Information (SW, Open Class)

My 2004 contest log containing 156 SW stations (incl. 5 of uncertain ID) suggests that conditions in Central Europe are still more different from those in the USA than on the MW band. There are a lot of high-power SW/BC stations of 100 to 1000 kW in the numerous European countries and the neighbour areas, and particular networks that operate on rather many frequencies - like R.Free Europe, R. Liberty, VoAmerica (partly R.Sawa), VoRussia, etc. with their various programs. It is mostly possible to ID the received stations of these networks, but often difficult to determine the site (country) from which the particular tx operates. Only a few real DX stations are in my log with China/Peking being the most distant one (9500 km). So, is it really fair to compare my results with those obtained e.g. in the US if one gets one point, also for every "nearby" SW station?

I used my 2003 contest set (see Wuggy's 2003 Contest site) which I extended for SW reception. This consisted in installing an air coil of 4 uH (fore in photo) for the 13m and 16m bands, a pair of Epcos pot cores of SW material K1 with solid-wire coils of 5.5 uH for 19m to 25m (marked by broken circle), and pot cores with 45/46 Litz coils of 10 uH for the 31m to 75m bands (full circle). Except for the air-coil tank I generally employ double tuning. The principal circuit layout for SW is the same as in the 2003 set (Ben Tongue approach). With the 5 SW coils there are now in total 13 coils in the set (LW, 3*MW, 3*SW), not counting those provided for triple tuning on extra boards (Boschodyne Plus).

At SW frequencies the obtainable tank resonance resistances are much lower than those at MW. Consequently sensitivity is a serious problem, and more often than on MW one hears two or even three stations at the same time. For improving the situation I employed a modified MFJ tuner 901B in front of the set (not shown in photo) to squeeze the last dB of power out of the antenna and trade it for selectivity. The tuner can be wired to act as a SPC or SL pre-selector, an "ultimate transmatch", or a capacitively-coupled third tank circuit (for triple tuning). With triple tuning I measured for example at 41m a loaded (i.e. with A/G and phones connected) -3dB bandwidth of 23 kHz and a -10dB b.w. of 47 kHz. -- I use a Schottky diode BAT 62 (as in photo) if high sensitivity is the prime goal, and 2 or 3 paralleled 5082-2835 if it is selectivity. The outdoor loop that I described last year in my contest report served as antenna.

For finding and then logging stations I employed two methods:

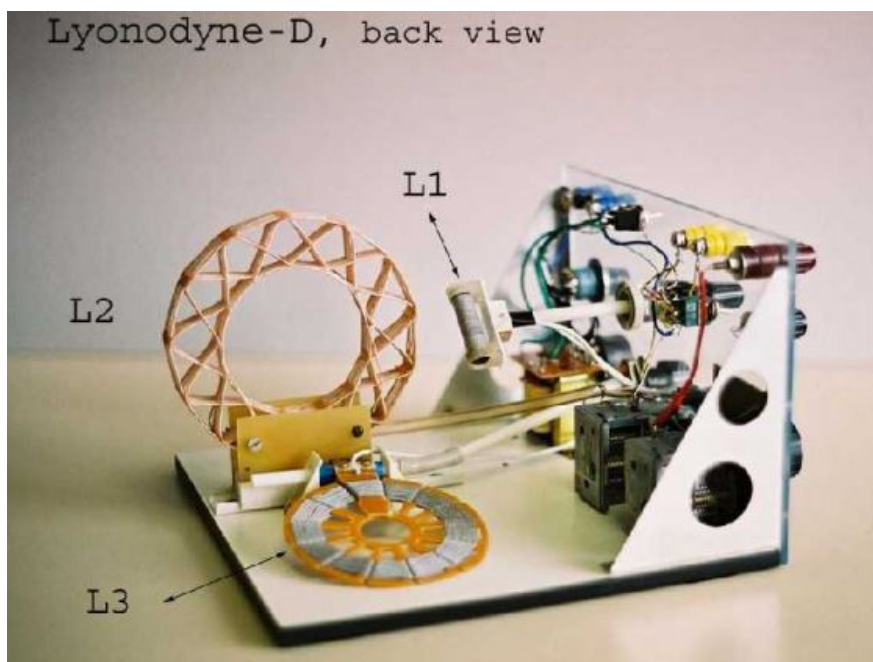
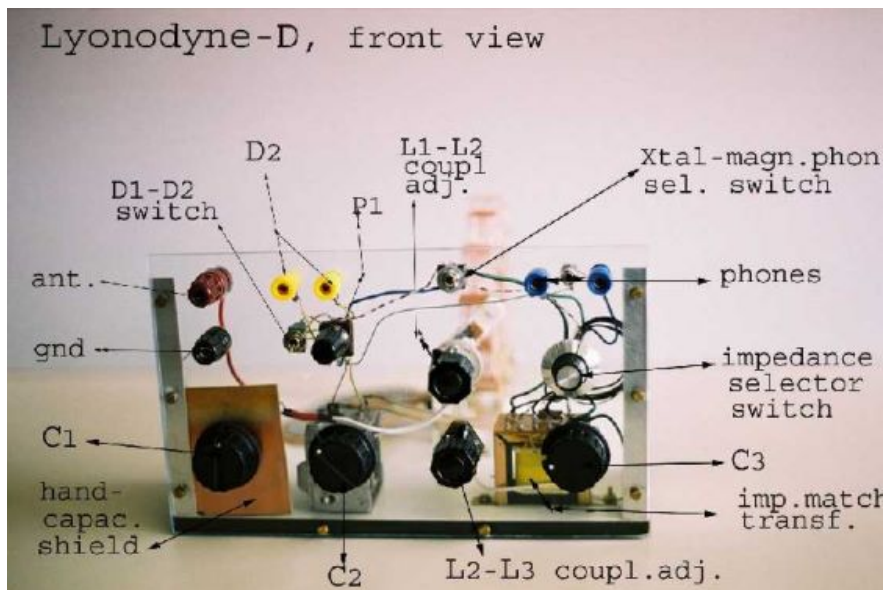
(1) First I scanned the band with my spotter radio ATS-404. When the scan had come to stop at a station, I tuned the xtal set to the particular frequency with the help of a loosely-coupled signal generator. After turning off the signal generator I then listened if I could hear that station in the SP phones of my set.

(2) When I had the xtal set tuned-up to a particular frequency within the SW band investigated, I slowly moved the sig. generator about 50 to 70 kHz around this frequency while watching for beat notes. When I found a strong beat I tuned the set to zero this beat, then turned off the signal generator, and listened whether I could hear the particular station. This was done repeatedly to scan various parts of the band. If I had been able to definitely hear the station in methods (a) or (b) I partly switched-on the spotter radio again for helping to identify the station received on the xtal set.

During this concentrated listening on SW, I found the rule of thumb again confirmed that Mike Tuggle formulated in a recent paper: "If you can hear them on a radio, you can hear them on a crystal set" - nearly always in my case.

Berthold Bosch

Dejan Momirov



2004 DX CONTEST SET DESCRIPTION

This is basically a Lyonodyne with some differences, such as:

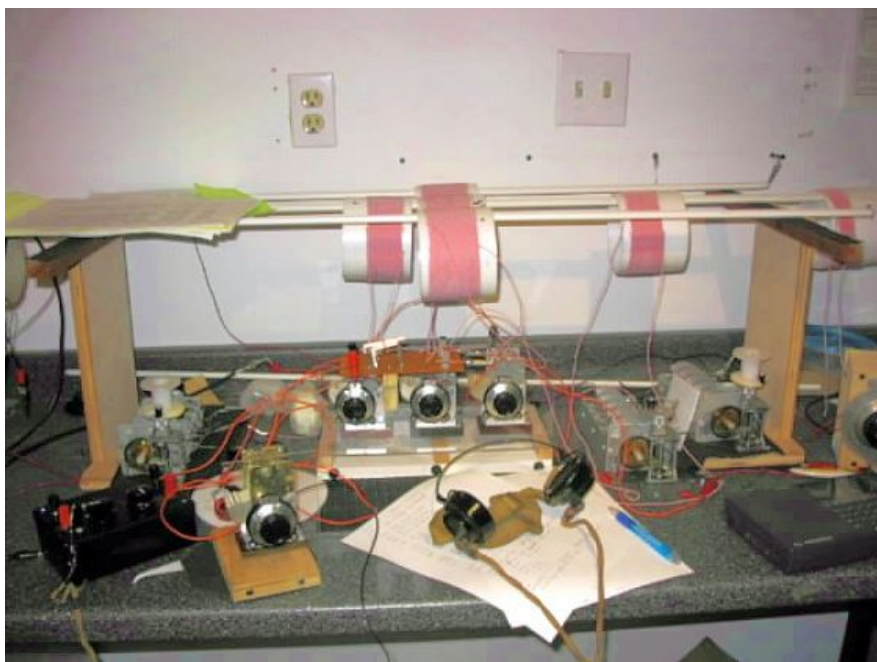
1. The complete set has been built on one chassis and all controls are at the front panel.
2. The C1-C2 coupling is double: by means of rotation and changing the distance, and wave-trap is coupled only by rotation.
3. Using one or both sections of the C2 spreads the upper BCB.
4. There is one built-in detector diode with the possibility to experiment with other types of detectors.
5. Audio transformer is home-made and together with the impedance-selection switch allows the use of different impedance headphones, as well as a sensitive speaker.

I am aware of all the imperfections which are subject to experimental improvements. I want to thank Mike Tuggle who invited me to join the Contest and gave me many useful advice. My gratitude also goes to Ben Tongue for helping me to improve my impedance-matching transformer.

N.B.: The switch s1 is not shown on the photo (introduced after the photo was taken!).

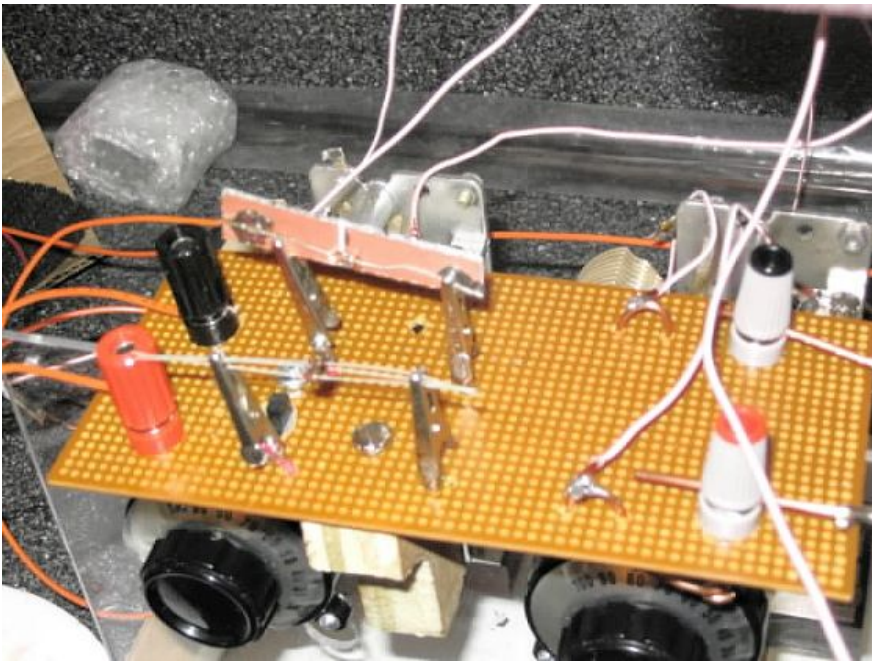


Gil Stacy





Five Litz 4.5" O.D. coils are in use at all times. The detector and antenna coils are controlled by the three 8-1 vernier dials mounted in plexiglass. The antenna circuit is a modified Tuggle front end approach with one TRW cap (C1) in series with the antenna with C1's stator linked to C2's stator. C2 is tied to the antenna coil and earth ground. C3 is tied to the detector tank. All caps are TRW's previously available from Fair Radio. This offers the set more flexibility in tuning than its previous traditional Tuggle Front end which used a dual ganged cap.


The three inductive traps surrounding the detector tank are driven by one gang each of three five ganged traps with right angled 120-1 drives from Fair Radio. Hand capacitance is controlled by use of empty plastic wire spools, slotted to accept the dials of the right-angled drives. The stand-alone TRW cap with vernier dial controls the inline toroid trap. The three inductive traps are permanently set to trap locals 1400, 1290 and 1230. The inline trap is used trap two local stations at 630 and 900 when in their vicinities. Otherwise it is used to assist swatting down 1230. Untrapped, 1400, 1290, and 1230 will show up all over the band because of their proximity to my location. The phones are DLR5s matched to the set via an STM designed by Steve Bringhurst. The set uses 3 paralleled Agilent 5082-2835s and a 3RT 12101 which are selected via a switch. To the right of the set is my frequency spotter Radio Shack DX 398. The antenna is an end fed wire, approximately 140' long, with a 90' horizontal run, up 50 feet. A post-contest improvement by adding three 8' copper-plated ground rods to existing water main ground has noticeably improved selectivity, sensitivity and my ability to control the qrm of locals 1230, 1290 and 1400. The new ground system has also opened up about 150 KHz previously lost to the above three locals.






Detector Board

[Continued on Page 2.](#)

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- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
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Sub Pages

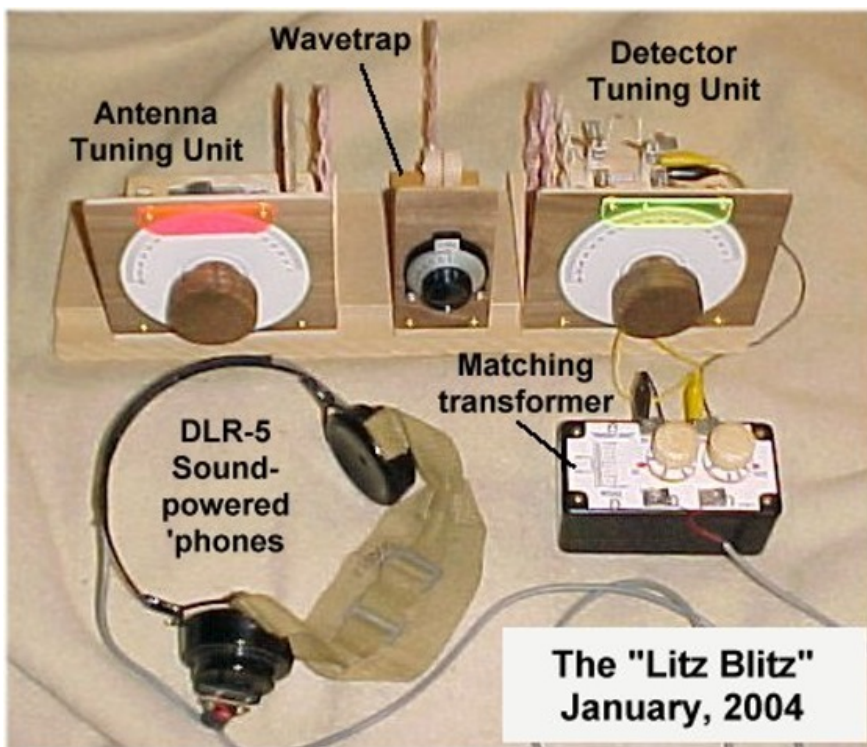
- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)
- [2006 Page 1](#)
- [2006 Page 2](#)
- [2006 Page 3](#)
- [2007 Page 1](#)
- [2007 Page 2](#)
- [2007 Page 3](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2004 Contest Entrants

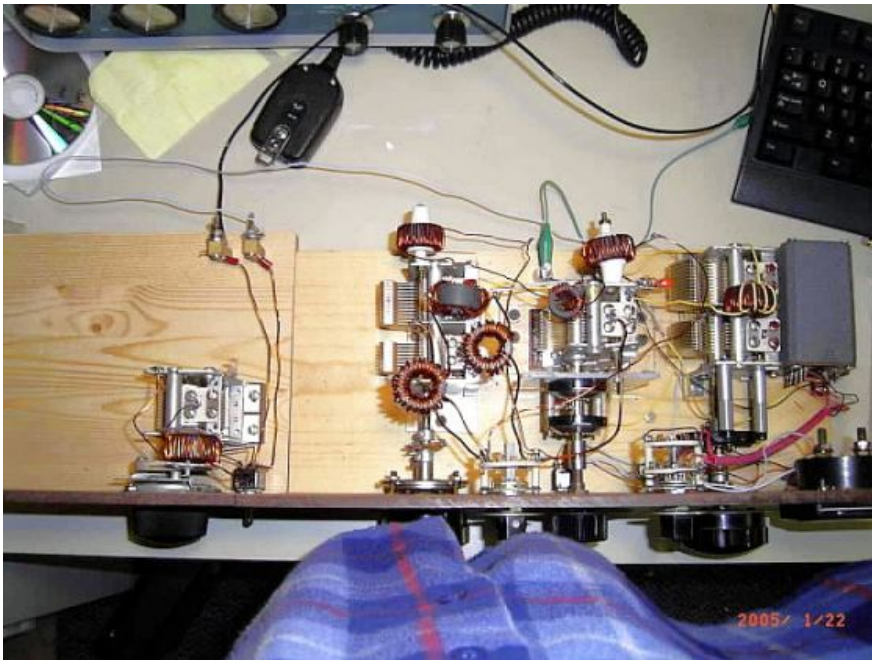
Page 2

Dan Petersen

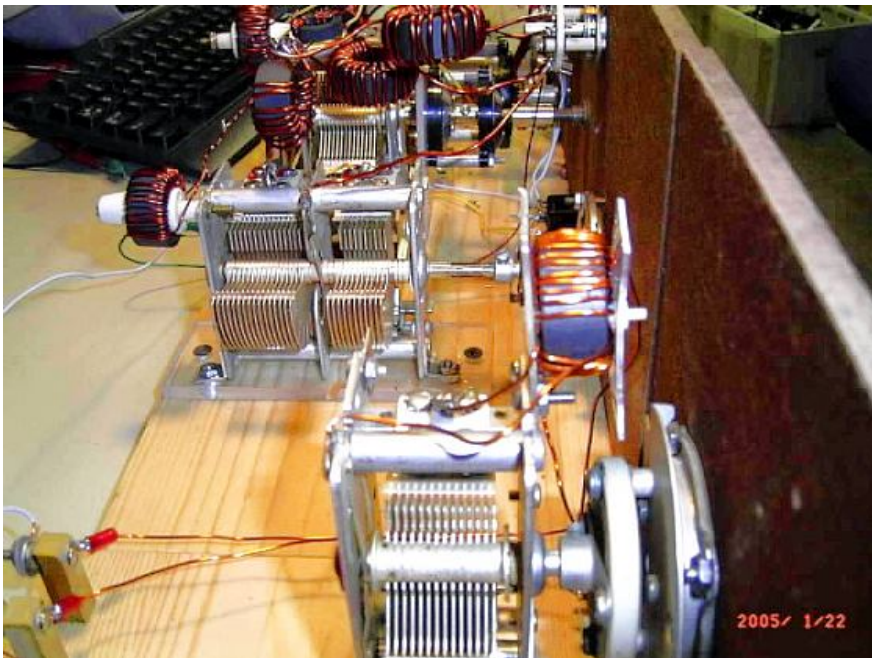


Here is a picture of Dan's set, the "Litz Blitz". This set is in the XSS Newsletter as an article in the March, 2004 issue.

Brian Wingard



Notice the FT114-61 cores and large diameter wire. Brian uses separate cores for Lo Band/Hi band.

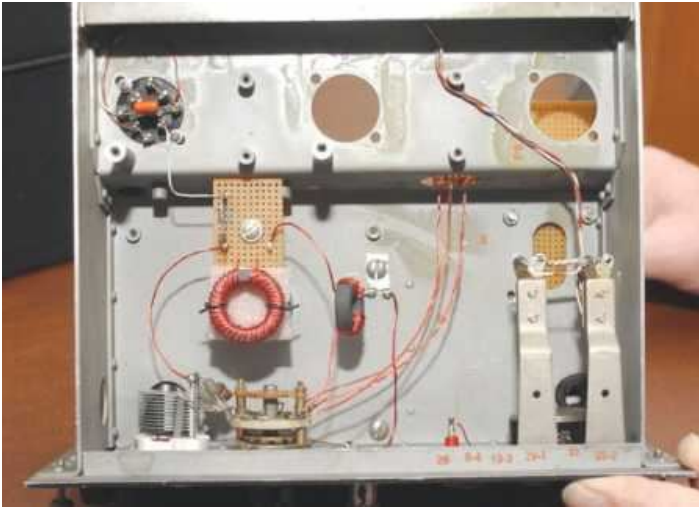




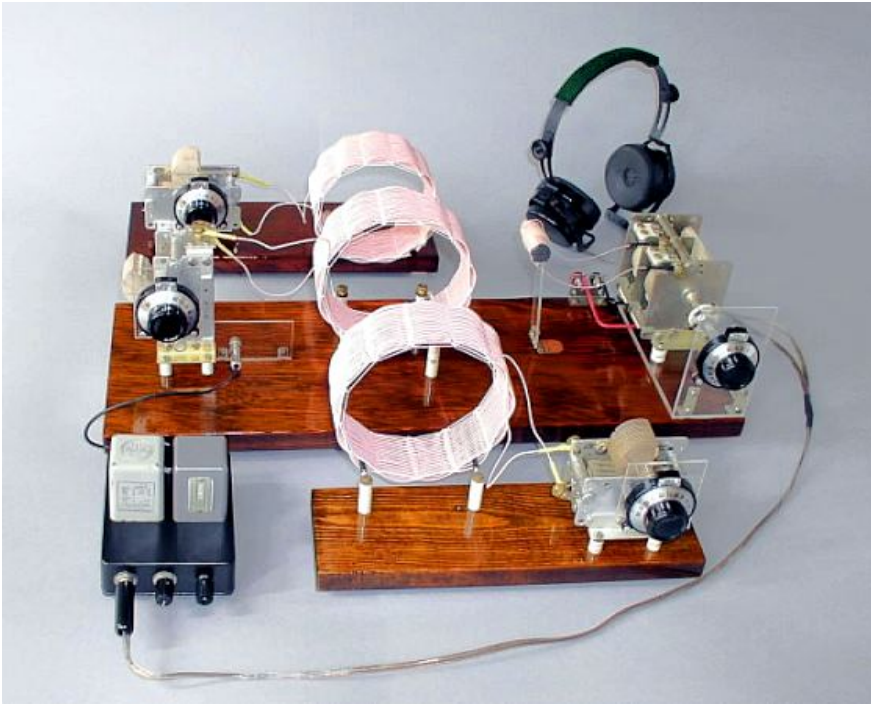
Steve Bringhurst



Steve uses a BC-221 as the basis for his BCB set. The BC-221 is a frequency meter, WWII vintage.



Mike Tuggle



Mike Tuggle's record smashing DX set.

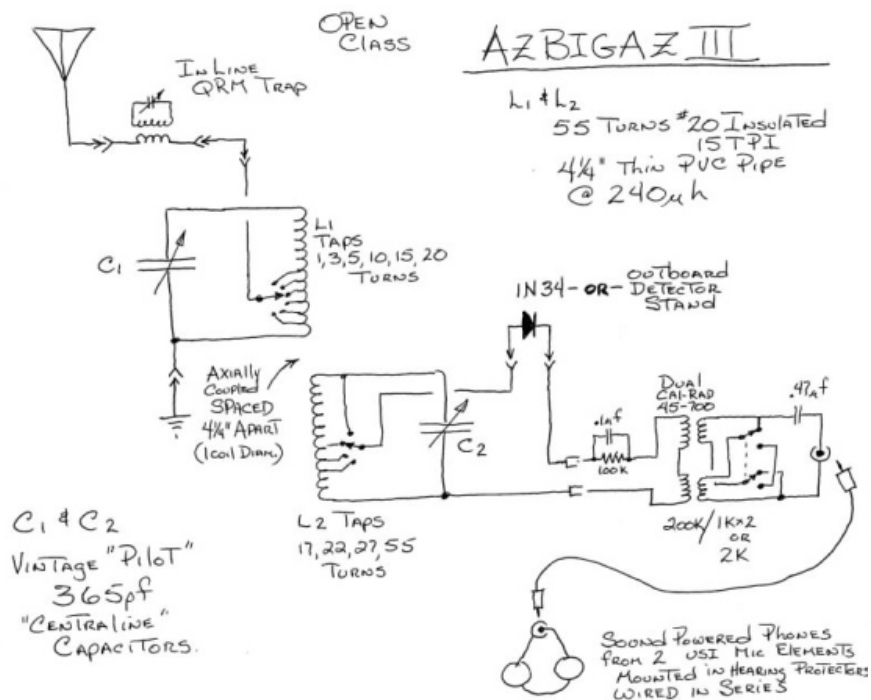
Mike Branson





The matching unit.





Jack Bryant



I started putting the set together on January 5, 2004...way late! I used a black plastic clipboard for the front and a clear orange plastic one for the chassis plate. 1"x3" small boards are used to hold up the chassis plate. I installed the coil supports during the contest and the phone jack afterward.

This set is a modified bandpass unit, but uses two separate coil assemblies. Each assembly consists of toroids wound on FT114-61A cores for the antenna and detector coils. Each assembly has its own coupling coil, connecting the antenna and detector circuits.

Here are the specs:

Lo Band

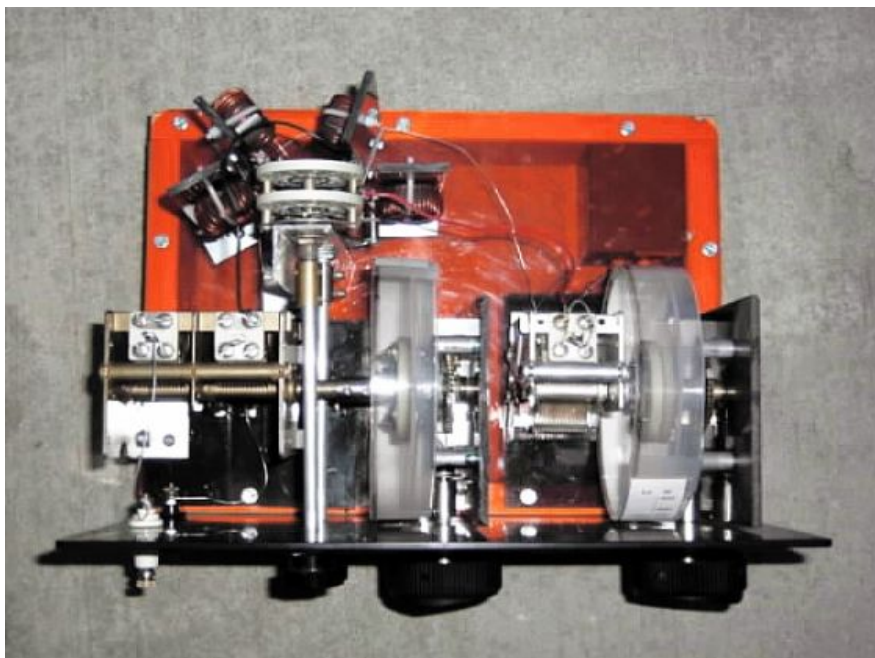
Antenna: FT114A-61, 33T #18

Coupling Coil: FT-82-61, 10T ant side, 5T detector side, tapped every turn (det side only) Detector: FT114A-61, 40T #18

High Band

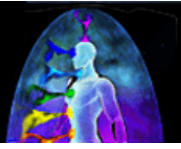
Antenna: FT114A-61, 22T #14 Coupling Coil: FT-82-61, 10T ant side, 5T detector side, tapped every turn (det side only) Detector: FT114A-61, 20T #14

The audio transformer is one of the Fair Radio 100k:100 ohm units. The headphones are Dynalec mic elements. I started with one of the ITT diodes, then settled on one with a blue stripe (characteristics unknown).



[Continued on Page 3.](#)

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- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)
- [2006 Page 1](#)
- [2006 Page 2](#)
- [2006 Page 3](#)
- [2007 Page 1](#)
- [2007 Page 2](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2004 Contest Entrants

Page 3

Lem Morrison



N4AHJ 2004 CONTEST CRYSTAL RADIO and OTHER INFO

ANTENNAS:

- (1) End-fed inverted V long wire, 135 feet with apex at 40 feet, two 135 feet counterpoises under the antenna.
- (2) Vertical, 48' tall Tee; top-loading consisted of two parallel wire spaced 38' and run 90' to Southwest and 40' to Northeast; 10 radials with lengths from 40' to 100'; series fed at base with single wire feed. Vertical core consisted of a cage of four parallel wires spaced 12" and two wires from each of the top-loading legs dropped down, spaced 4" from core center, and connected to base to provide broader bandwidth.
- (3) Sloper, 118' with far end at 50' and station end at 8', oriented toward East-Northeast.
- (4) Sloper, 130' with far end at 50' and station end at 8', oriented toward West-Northwest

Ground system: Ham station ground - six ground rods interconnected and connected to shack with two quarter-inch copper straps; supplemented by one 8' ground rod directly under Vertical antenna and 2-4' ground rods under the wires dropped from the top-loading legs, all inter-connected with copper wire; both ground systems connected with two runs of copper braid salvaged from old RG-8 coax. Radials were 17-ga aluminum wire (used for electric fences).

TRAPS:

- (1) Tunable(1) - 2-section variable, sections in parallel, 240pF total; Rook coil with 18 gauge wire, 5.25 inches effective diameter, 47 turns; air-coupled to the Detector coil.
- (2) Tunable (2) (located in Antenna Matching Unit) - both use 14 gauge enamel wire on FT-114A-61 cores and dual-section variables with both sections in parallel.

(3) Fixed (9) (located in Antenna Matching Unit) - 14 gauge to 22 gauge enamel wire on FT-114A-61 cores, silver mica fixed capacitors, and plated ceramic trimmers (one trap for each of the local "powerhouses"). Each link-coupled to the antenna feed to the set.

ANTENNA MATCHING UNIT (AMU):

One 4-section variable capacitor, four fixed capacitors (500pF, 1000pF, 2200pF, and 5000pF), and two coils (42 turns 14 gauge enamel on a FT-240-61 and 26 turns 16 gauge enamel on a FT-114A-61). All components switched to provide four matching arrangements: series LC, parallel LC, inductance only, and capacitance only. Both inductors tapped to provide 23 settings. An antenna switch is provided for switching between up to five antennas.

TUGGLE TUNER:

Capacitor - 520pF variable, 4 sections, 2 used in Tuggle arrangement, vernier is a surplus right-angle unit with a 25:1 ratio.

Coil - Two Rook coils with 16 gauge enamel wire, 5.25 inches effective diameter, 15 turns each, 30 turns total; bandswitched to provide either series or parallel coupling to provide Low band and High band tuning, a la Ben Tongue's arrangement; air-coupled to the Detector coil.

DETECTOR TUNER:

Capacitor - 420pF variable with home-made vernier with a 32:1 ratio (vernier constructed from gears salvaged from a VCR and a TV tuner).

Coil - Two Rook coils with 16 gauge enamel wire, 5.25 inches effective diameter, 20 turns and 21 turns, 41 turns total; bandswitched to provide either series or parallel coupling to provide Low band and High band tuning, a la Ben Tongue's arrangement; switchable taps (High Band: 100%, 75%, 50%, 25% and Low Band: 100%, 87.5%, 67.5%, 50%, 25%) on coils to provide matching to diodes.

Diodes - Three 1N34A Radio Shack equivalents, paralleled and matched for Forward and Reverse resistances.

AUDIO:

Matching - Reproduction of Steve Bringhurst's Ulti-Match circuit.

Headphones - Two Automatic Electric GH-66919 elements (manufactured 1942) out of a military handset.

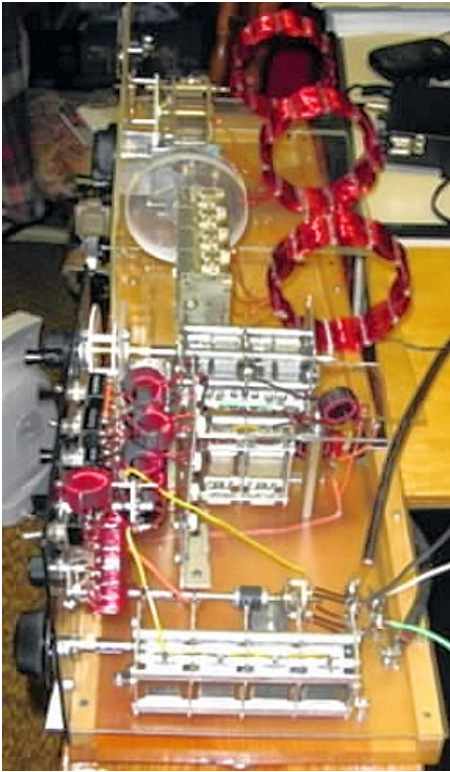
NOTES:

The basic set is the same as my 2003 contest set. I moved the fixed traps from the Tuggle Tuner to the AMU and complemented them with two tunable traps. There were a number of times when I used all three tunable traps and one, or more, fixed traps!

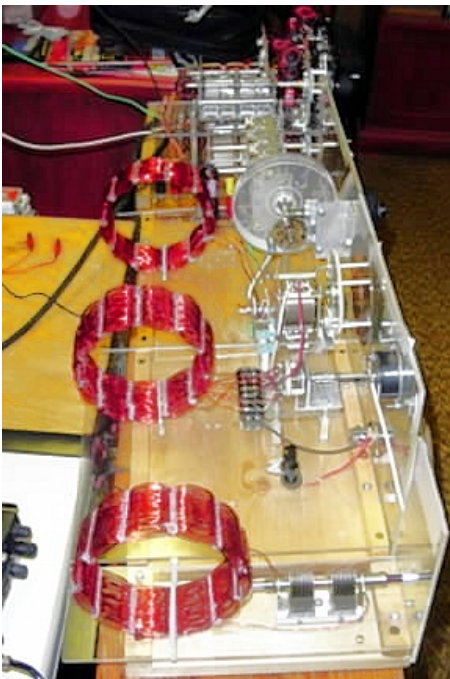
I determined optimum AMU settings across the AM BCB for each antenna prior to the contest.



Notice the spotter set and audio matching unit on the bottom shelf.

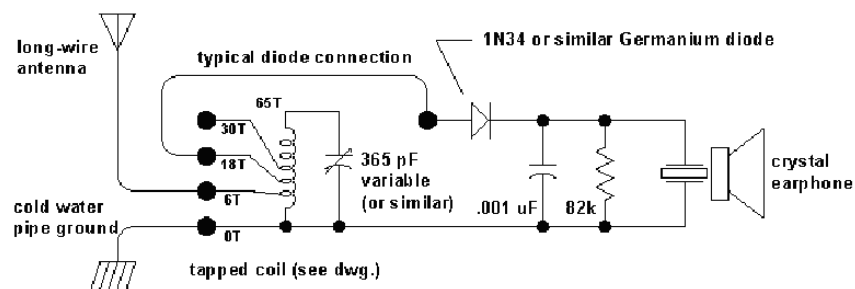


View from right side



View from the left side

Ed Phelps



Crystal radio with typical connections for a long wire antenna and good ground connections. The diode is connected for weak signals and moderate selectivity.

[Click to view larger schematic.](#)

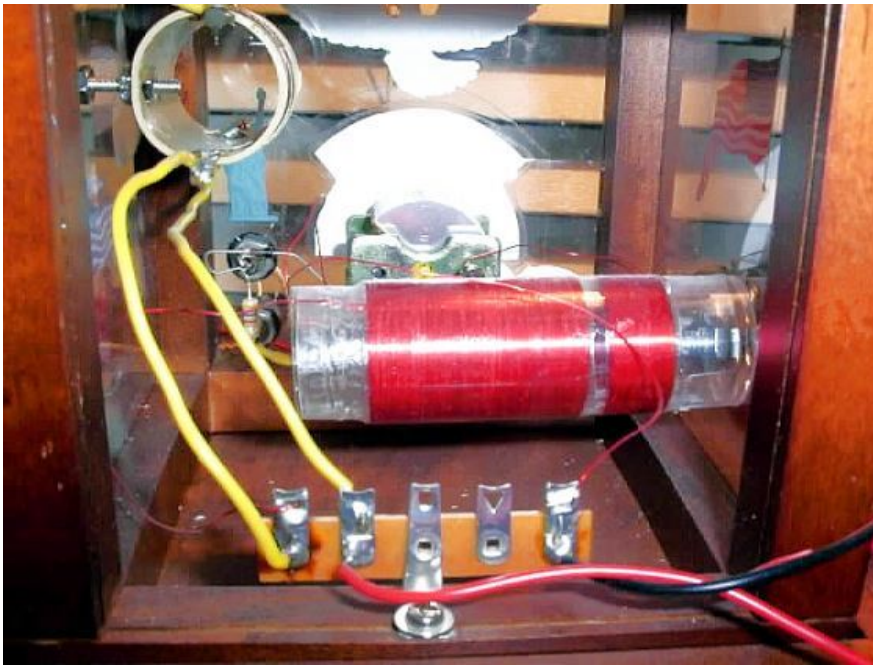
Mike Schroeder



Top View



Front View



Rear View

Dave Schmarder



These pictures and discussion are from Dave's site at: [Dave's #35 DX Radio](http://daves35dxradio.com). His full description of this receiver is at his makearadio.com website.

This is the Crystal Radio to End all Crystal Radios. Hello there. Can't you just feel the tension rising? With this new radio I shift gears again. Large litz wire, high quality variable capacitors, schottky diodes. It won't get much better than this. Last night I am proud to announce that I heard KMOX in St. Louis on this radio. That is my furthest DX ever. I am sure that the ionosphere was hot and the wind was blowing my way, but a heard station is a heard station. Enough bragging and on with the show.

This radio is built in modular form. [Mike Peebles](http://mikepeebles.com) gave me the idea when he had his modular crystal set published in the Crystal Set Society newsletter. The first part built is the detector. This consists of the main tuned circuit with my 660/46 Überlitz Coil. This is of my own design. I am a big fan of litz spider coils, and this is a big litz spider coil. I believe I hit crystal set heaven with this coil. The detector unit also has a selectivity / sensitivity control using a differential capacitor. Besides all of this there is, of course, the detector diode itself. I made a board with a

three position link switch and places for three diodes to be connected. This allows me to easily compare 3 diodes in the same set. After the diodes is an audio output transformer and RC network. The 27 mh choke provides a DC return path for the diode circuit.

The variable capacitor is an old one made by National Radio. I made a wheel and fashioned a vernier tuning system with a grommet and a dowel rod. I get nice, slow and smooth tuning with this system. You can use a vernier dial instead if you don't have one of these capacitors in your junkbox.

The selectivity and sensitivity are handled by a differential capacitor and a piston trimmer. This system was first used in the Hobbydyne II circuit by Jim Frederick. The piston trimmer is for tracking adjustment. You adjust the piston trimmer until the main tuning needs no touch up after turning the differential capacitor. This is a breakthrough in weak signal reception on a crystal set.

The audio transformer matches the very high (100 k ohm +) detector circuit with the much lower impedance headphones. I am using a 100k to 1.5k ohm transformer. If you can find a high quality transformer, go for it.

This covers the detector section of my high performance radio. Next comes the antenna input circuit and maybe a wavetrapp.

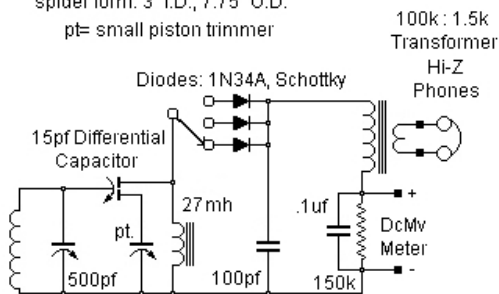
My tuning unit is now complete. The coil is made from 660/46 litz. The hub diameter of the coil is 3 inches. The coil form made from 1/16 inch styrene sheet is 6-1/2 inches wide and 7-1/2 inches tall. There are 33 turns on it for an inductance of 150 μ H. The variable capacitor has 600 pf per section. Smaller ones can be used, however the low end of the band might not tune. You could probably get away with a 500 pf per section capacitor. This antenna tuner is wired as a "Tuggle Tuner".

Earlier I had used a 150 micro henry coil made from 40/44 litz wire. This worked quite well. One night very late, I scanned the dial and with this set up I heard 40 stations. Not bad for a September night.

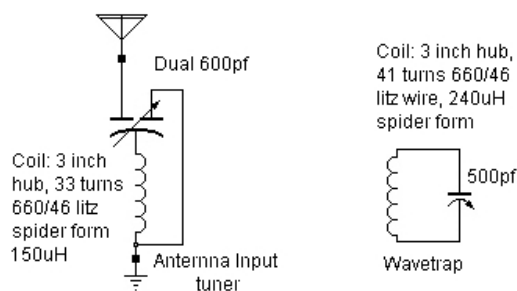
The two units are placed next to each other. The coil distance for good overall operation are about 15 inches apart. Careful adjustment of the antenna tuner and detector tuning are required. The Q of these types of coils have been measured at over 1000! This ain't your grand pappy's crystal set.

If you build one of these, let me know how it plays for you. Happy crystal set dx. Dave, N2DS

Coil: 660/46 litz wire, 41 turns on styrene spider form. 3" I.D., 7.75" O.D.
pt= small piston trimmer



Crystal Radio Detector Schematic (c) 2004, D. Schmarder



Crystal Radio Antenna Tuner and Wavetrapp
(c) 2003 D. Schmarder, N2DS

[Back to the main page.](#)

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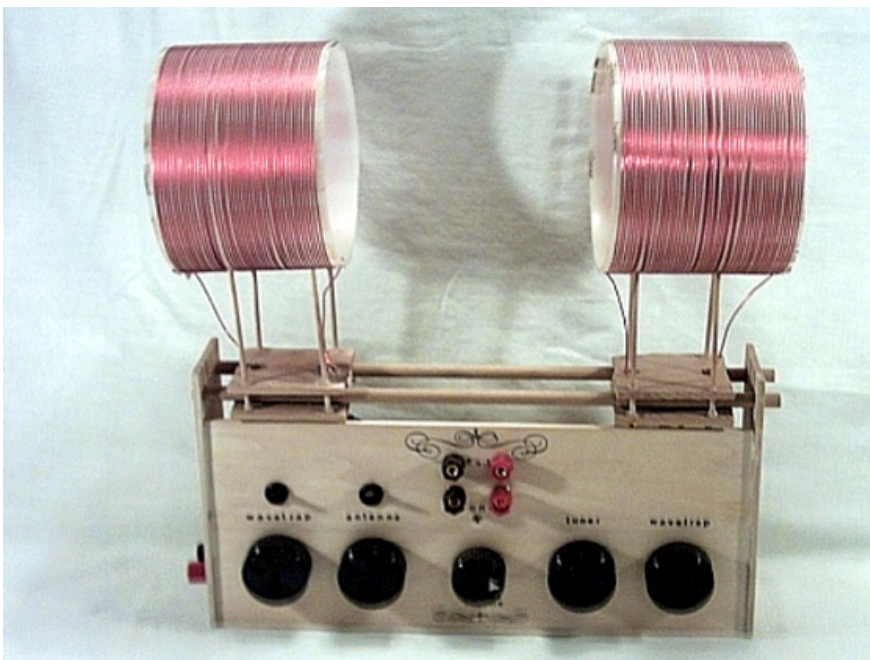
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- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2005 Contest Entrants

Page 1

Charles Pullen (Chuckster)



Basic Double Tuned Set

The antenna coil is a 5.5 inch space wound with 16awg @ 240uh paralleled with a 20-340pf air variable, loosely coupled to a 5.5 inch space wound with 16awg @ 270uh paralleled with a 20-340pf air variable detector coil. The detector used was two 1ss98 schottky diodes in parallel. I Used the original ultimatch circuit by Steve Bringhurst for impedance matching. Used two Philmore xtal earbuds in parallel, connected to the ultimatch with a radio shack mono Y-adaptor.

The lone wave trap is a 4" x 3/8 inch ferrite rod wrapped with litz to obtain 270uH with a parallel 20-340pf air variable. This was arranged so it could be loosely coupled to the detector coil, suspended inside the center of the detector coil or outside the detector coil in axis with its center, or rotated 180 degrees out of the way. I found this particular style of wave trap to be extremely effective for even the strongest local.

The antenna was two separate wires, one 50 foot wire tacked to the ceiling running about 30 feet east-west the remaining twenty feet running north & south. The second antenna wire was a portable reel of 25 feet borrowed from my Grundig YB and attached to the set. This is in a second story apt. Ground was about 25 feet of speaker wire running to a CWP.

Dave Schmarder



See complete description of Dave's radio at this link: [Dave's #50 Set](#)

Open Class

Dual 660/46 litz coils and two tuning capacitors.
differential coupling capacitor
Schottky Diode Detector
Sound powered headphones
Antenna 40 meter wire up 3 - 4 meters running east to west.



33 inches (84 cm) per side. FO-215 Detector, Bogen transformer, Sound powered phones

See the details of this loop at [Dave's Loops Page](#).

Bill Meacham (Exray)



This set is my third generation of a model based on Steve Bringham's TK-2 toroidal set. I went with an external detector coil on this one which offers the advantage of being able to close-couple an external trap (not shown) to the detector coil to notch out instances of interference when the coil itself is picking up local signals via the air.

The set is built on a Garolite front panel with custom-made decals and lacquered for durability and shine. All of the RF components are on standoffs to avoid any possible leakage path through the panel. Vintage tuning capacitors were used and they have been thoroughly cleaned and checked for rf integrity. Both are straightline tuning types to minimize crowding at the high end of the band.. The input tuner is of the "Tuggle" type and uses a toroidal inductor. The inline wavetrap also uses a toroid. The detector uses a nice Pilot Kilograd tuning cap and a coil of 165-strand litz wound on a Lexan former. Its Q is greater than 500 across most of the band. Detector is a germanium FO-215 and the set uses a Calrad output transformer with an adjustable AF impedance matching control (benny) for minimizing distortion on strong local stations. I have been using the set with sound powered phones and they match well.

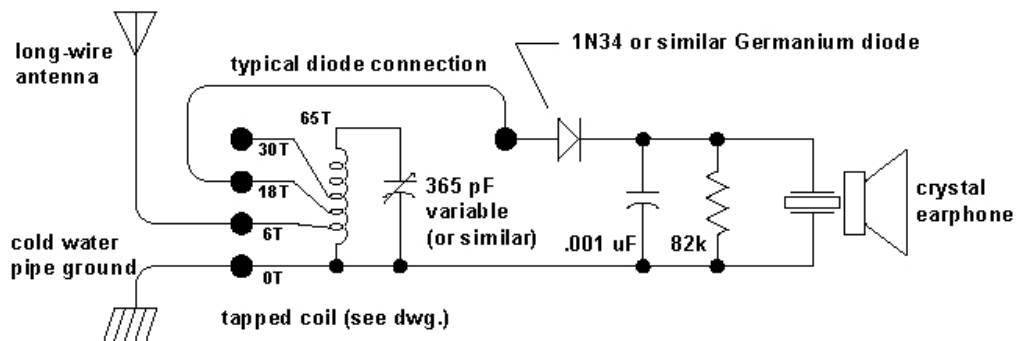
Calibration on this set is very accurate and it's easily resettable to locate particular stations. I added a set of front panel terminal posts to allow for tinkering with other detector tank options. The coil mounting assembly on top is also configured in this fashion to allow experimentation with other coils. Ceramic standoffs and feedthru bushings were incorporated to assure minimal losses.

Cabinet is homemade, made with Baltic Birch and is stained and lacquered using clear and toned lacquer.

Ed Phelps



.. is the same 140 ft, base insulated, vertical I used last year. (picture is crooked, not the tower)



Crystal radio with typical connections for a long wire antenna and good ground connections. The diode is connected for weak signals and moderate selectivity.

I made a few minor changes to this circuit. In place of the 1000 pf capacitor, I use 250 pf. The 82k resistor, I changed to 100k. I use a pair of ceramic earphones, wired in series.

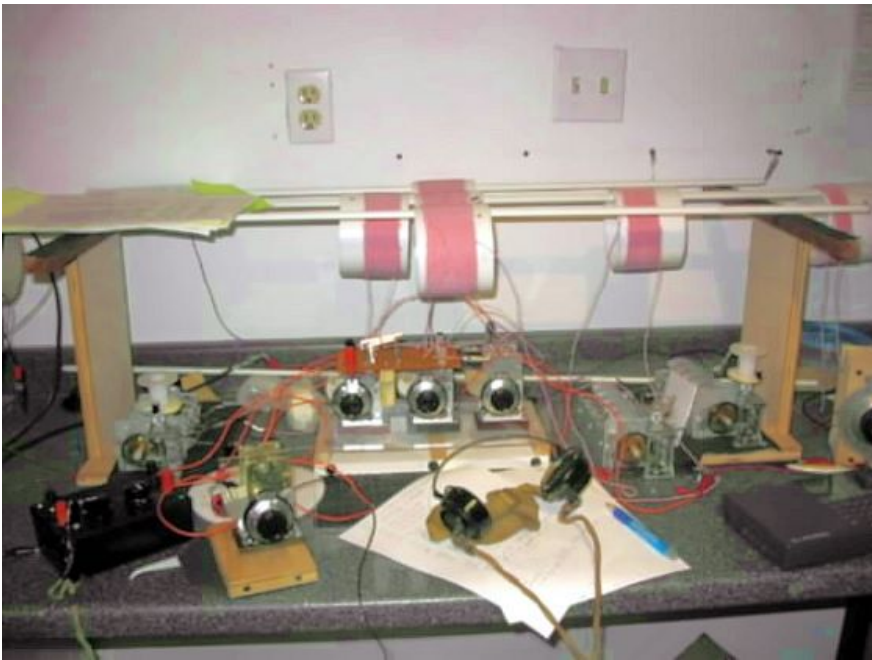
Eric Haydon



The contest this year was a lot of fun. I put in many many hours of listening. The band was very up and down in Nebraska. Thursday and Friday nights were the only nights that I would call "normal". The unusual conditions on the other nights did however allow for the reception of a few stations that I had never heard before on my crystal radio. I probably heard at least 30 more Spanish speaking stations than I logged. I only logged the ones that were very strong or heard almost every night.

I heard many more stations this year than last year due to several improvements that I have made to my listening station. I used the same crystal radio as last year with the following improvements. My antenna is now higher and has been extended to about 240 feet in length. My ground system is improved. I was lucky enough last summer to acquire a pair of RCA "big can" headphones in very nice condition. They do help some. I finally built some filters that work very well to trap strong local stations. This allows me to now receive quite a few new stations on frequencies close to my local stations. The last improvement > is that every year I get "smarter".

Gil Stacy



Set: Same set as last year.

Headset: RCA Big Cans tuned and recharged by Steve Bringhurst.

Antennas: 88' top loaded vertical up 50' and 180' inverted "U" up 50'.

Ground is the post 2004 DX contest ground described at the bottom of [this page](#)

Jack Bryant



I used the 2004 BCB Contest set again this year. We moved after the last contest, so the antennas, ground system, and location were different.

I used two antennas. There first was a top loaded vertical. The top section is about 110' long and is a 80M - 10M trap dipole. The antenna is up about 50' high. The coax feed line is used as the feeder.

The second antenna is an upside down U, roughly 40' vertical on each end, 260' horizontal. I feed it with ladderline in the horizontal section, about 20' from where one end goes vertical. This makes it about 60' from one end of the wire. The antenna was used in three different configurations:

- 1) Each bottom vertical run is grounded. This is the grounded loop configuration.
- 2) Only the end closest to the feedline is grounded. This is similar to an inverted L approach
- 3) No ends are grounded. This is similar to an off-center fed dipole. All changes were done manually (no switches or relays yet).

[Continued on Page 2.](#)

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- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

- [Main Page](#)
- [2004 Page 1](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2005 Contest Entrants

Page 2

Lem Morrison



N4AHJ 2005 CONTEST CRYSTAL RADIO and OTHER INFO

The picture shown is the set in the 2004 Contest configuration.

TRAPS:

- (1) Tunable (1) - 2-section variable, sections in parallel, 240pF total; Rook coil with 18 gauge wire, 5.25 inches effective diameter, 47 turns; loose-coupled to the Detector coil.
- (2) Tunable (2) (located in AMU) - both use 14 gauge enamel wire on FT-114A-61 cores and dual-section variables with both sections in parallel.
- (3) Fixed (9) (located in AMU) - 14 gauge to 22 gauge enamel wire on FT-114A-61 cores, silver mica fixed capacitors, and plated ceramic trimmers (one trap for each of the local "blow torches"). Each link-coupled to the antenna feed to the set.

ANTENNA MATCHING UNIT (AMU):

One 4-section variable capacitor, four fixed capacitors (500pF, 1000pF, 2200pF, and 5000pF), and two coils (42 turns 14 gauge enamel on a FT-240-61 and 26 turns 16 gauge enamel on a FT-114A-61). All components switched to provide four matching arrangements: series LC, parallel LC, inductance only, and capacitance only. Both inductors are tapped to provide 23 L settings. An antenna switch is provided for switching between up to five antennas.

BANDPASS TUNER:

Capacitor - 520pF variable, 2 sections used in Tuggle arrangement; vernier is a surplus right-angle unit with a 25:1 ratio.

Coil - Two Rook coils with 14 gauge enamel wire, 6.25 inches effective diameter, 15 turns each, 30 turns total; bandswitch provides either series or parallel coupling for Low band and High band tuning based on Ben Tongue's approach; loose-coupled to the Detector coil.

DETECTOR TUNER:

Capacitor - 420pF variable with home-made vernier with a 32:1 ratio (vernier constructed from gears salvaged from a VCR and a TV tuner).

Coil - Two Rook coils with 14 gauge enamel wire, 6.25 inches effective diameter, 18 turns each, 36 turns total; bandswitch provides either series or parallel coupling to provide Low band and High band tuning based on Tongue's approach; impedance taps (High Band: 100%, 75%, 64%, 50%, and 28%; Low Band: 100%, 72%, 50%, 28%) on coils to provide matching to diodes.

Diodes - Two (one marked FO215 and one marked 3502) in parallel.

AUDIO:

Matching - Reproduction of Steve Bringhurst's Ulti-Match circuit.

Headphones - Two Automatic Electric GH-66919 elements (manufactured 1942) out of a military handset and a set of Steve Bringhurst's enhanced SP cans.

NOTES:

The basic set is similar to my 2004 contest set. The primary > differences: larger Rook coils with larger gauge wire, hotter diodes (thanks to Steve Bringhurst), 20 uA meter, and new front panels.

I determined optimum AMU settings across the AM BCB for each antenna prior to the contest. These settings were reasonably reproducible during the contest, even when it rained!

The capability to switch among three antennas was great, especially between vertical and horizontal polarization. A station that was uncopiable on one antenna usually would be loader on one of the others. Generally, I used the vertical the most, but I noticed on several occasions that I could hear a station on one of the slopers when I could not on the Tee.

By the way, I live on a city lot that is 85' wide and 165' deep. However, I am blessed with having very good relationships with my neighbors on both sides and with a wooded area directly behind my lot. After Hurricane Ivan destroyed all my antennas (three oak trees ranging from 50' to 80' tall fell!), both neighbors allowed me to re-erect the Slopers across their backyards. Also, the 90' leg of the Tee ran well into the woods behind my lot.



**ANTENNAS:**

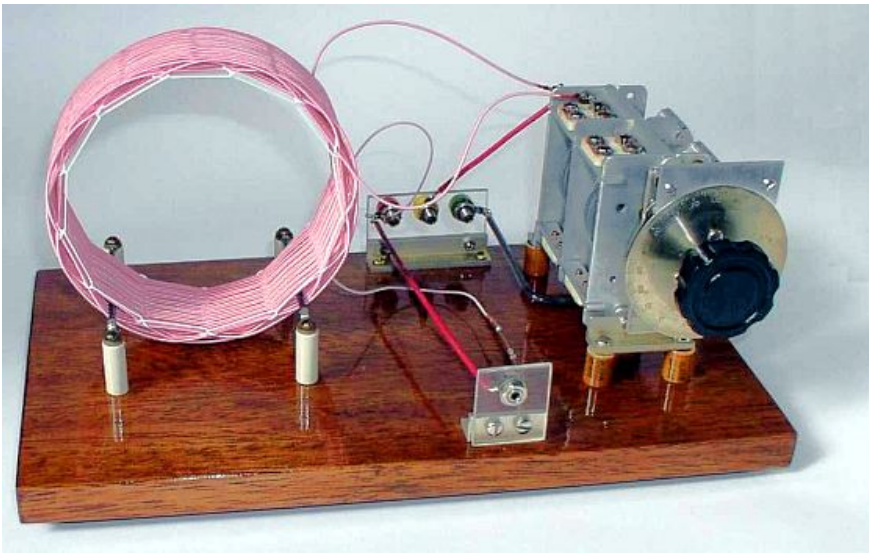
(1) Tee, 46' tall; top-loading legs consist of two parallel wires spaced 38" and run 90' to Southwest and 40' to Northeast. The vertical core consists of a cage of four parallel wires spaced 12" apart. To provide broader bandwidth I added two vertical wires from each of the top-loading legs (spaced 4' from core center), and one additional vertical wire on Southeast and Northwest sides (spaced 4' from core center). All of the vertical wires are connected at the base and series fed with a single wire.

(2) Sloper, 118' with far end at 50' and station end at 8', oriented toward East-Northeast

(3) Sloper, 130' with far end at 50' and station end at 8', oriented toward West-Northwest

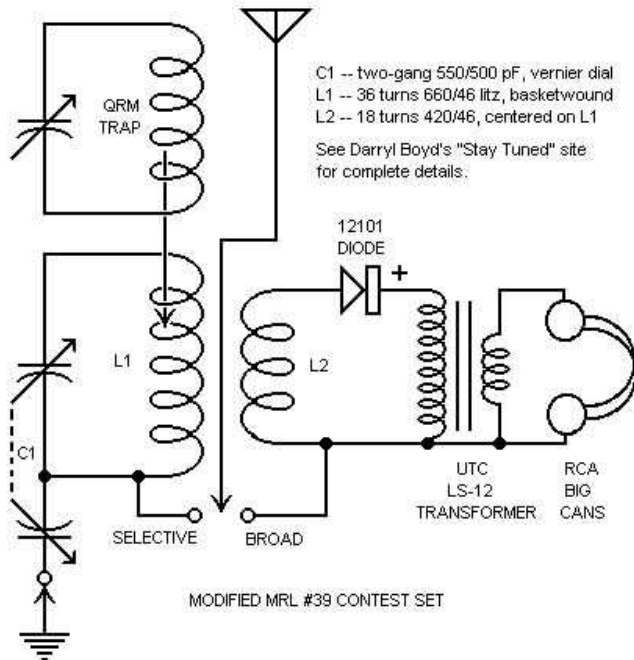
Ground system: Ham station ground - six ground rods interconnected and connected to shack with two quarter-inch copper straps; supplemented by one 8' ground rod directly under the Tee and 4-4' ground rods under the wires dropped from the top-loading legs, all inter-connected with copper wire; both ground systems connected with a run of copper braid (salvaged from old RG-8) over a #10 copper wire. Radials are 17-gauge aluminum electric fence wire; used 12 radials with lengths from 30' to 135' (one radial attached to the city water system!).

Mike Tuggle



As it turns out, all loggings were made in the 'BROAD' configuration.

The DX gods never really smiled this time, maybe an occasional smirk. Still, I guess I can't complain.



Philip Miller Tate (Ge_Whiz)



The radio is a loose-coupled set. The antenna coil is heavy solid copper wire, 16 turns on a two-and-a-half inch diameter ABS drain pipe, tapped every other turn. The aerial is coupled in via one stage of a dual 120 + 120pF variable capacitor; the other is in parallel with the coil. There is no earth connection – the set works better without it – but the earth level is hard-wired through to the detector coil. The aerial itself is a total of 120 feet of wire running from the end of the house, 50 feet to the shed roof and back at an angle of about 35 degrees to the opposite end of the house, average height 20 feet above ground. Note that there is no vertical section, as the radio is located on the top floor of the house.

The detector coil is eight turns of 660/46 Litz wire with an inductance of 5uH, wound on a five-point rook former of the same ABS pipe, in parallel with a 350pF variable capacitor with three-turn gearing. The combination tuning system covers approximately 4-15MHz. The detector is an AAZ18 germanium gold-bonded diode. Output is to a Select-to-Match transformer system and thence to a pair of DLR-5 military balanced-armature headphones.

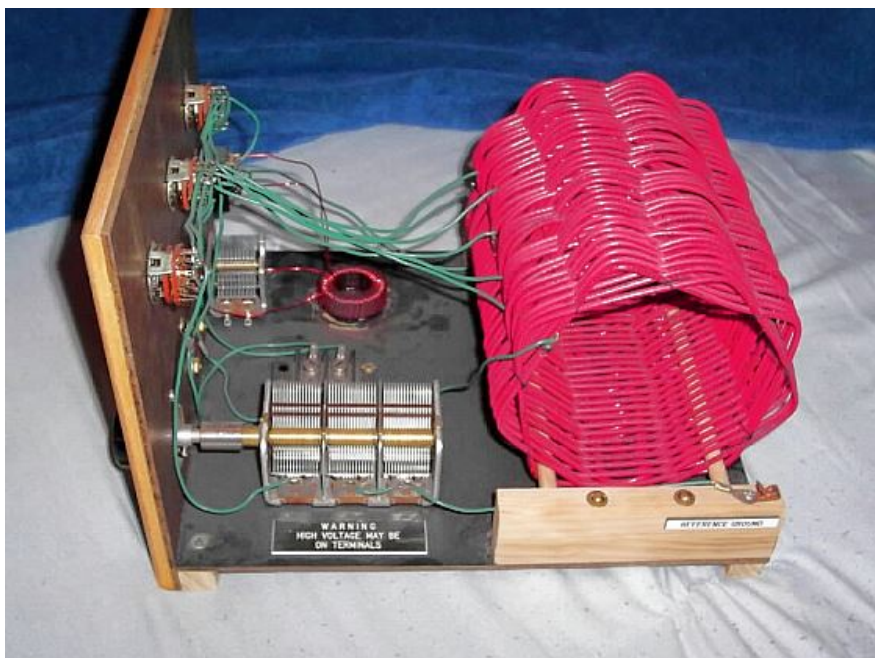
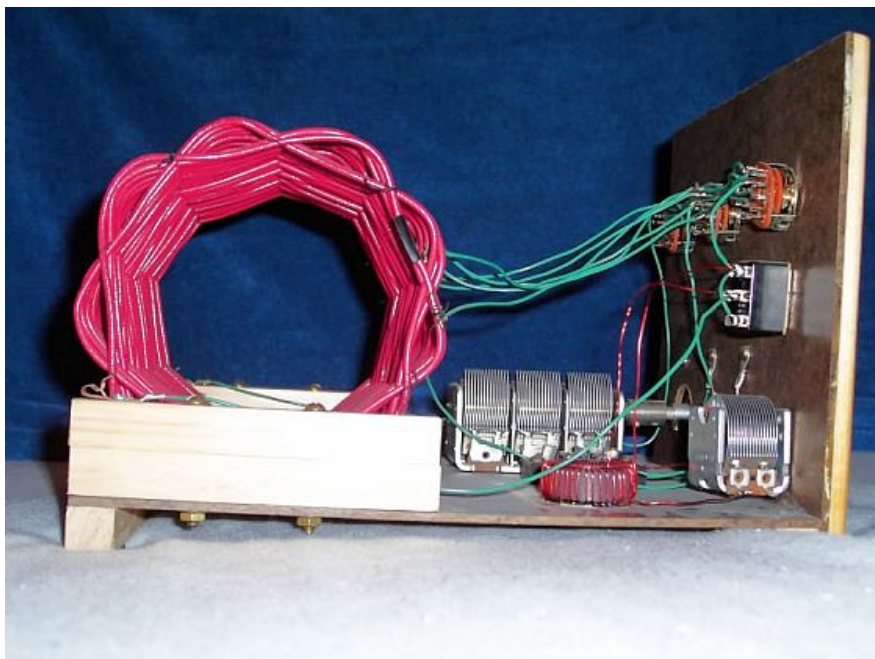
Alongside the detector coil, as shown above, is the plug-in coil of a homebrew gate-dip oscillator connected to a Racal Nixie-tube digital frequency meter. By carefully adjusting the tuning of the GDO, the dip of the detector coil resonance can be found to about +/-20kHz accuracy, and used to find the station on the spotter radio, a Sony IC100.

Rich Shivers



I have followed the comments on the Rap 'n Tap board, and agree that conditions were not very good this year. Compared with last year my total station count was down and DX stations were just not there. Disappointed, yes; did I have fun, yes.

I am using a large tapped single coil set. It's an air core basket weave coil 5" in diameter, about 8" long. 66 turns of 14awg THNN household wire. It is tapped every 11 turns with separate rotary switches for the antenna, detector, and capacitor. Normal arrangement has the antenna and detector tapped near the bottom of the coil. By tapping down the tank circuit I can band-spread the top of the band for improved selectivity. The tuning cap is a three section 400uh unit. One section across the coil, the other two section in parallel from the bottom of the coil to ground. A 8 to 1 vernier dial drives the tuning capacitor. Between the antenna and tank coil is a wave trap constructed of a tank circuit and a coupling coil. Both trap coils are wound on a single ferrite core. Headphone are WE 509's. Detector is a 1N34. Antenna is a T arrangement; 40' across the roof, with an 8' lead-in, the other leg drops straight down for 12'.



Lou Dayich



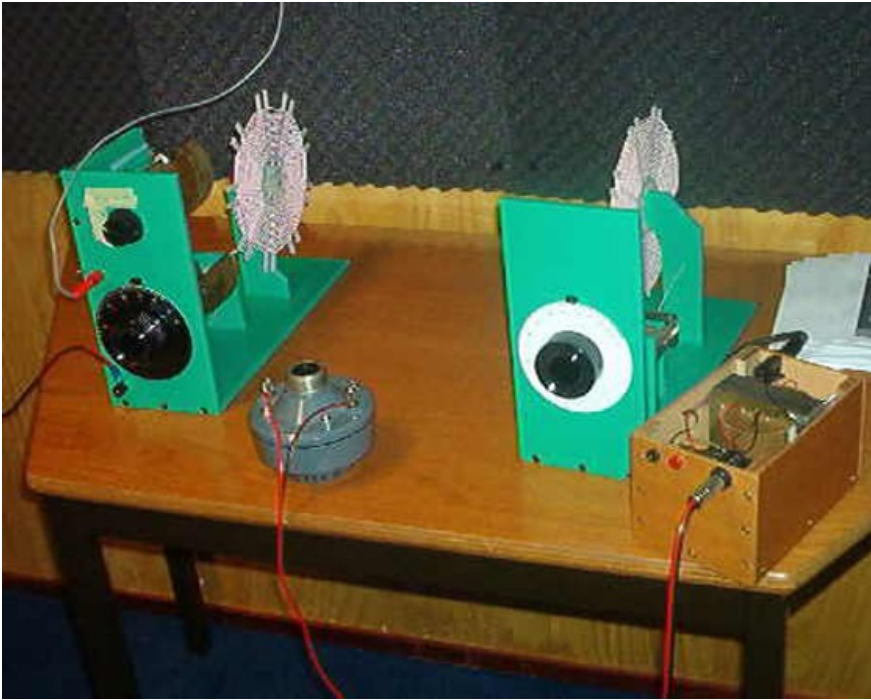
I built a new set for this year's contest. Some components were transplants from the 2004 contest. This set uses three coils and 5 variable capacitors, you will also notice three knife switches that were used in various parts of the receiver.

The antenna coil is approximately 30 turns of close wound magnet wire, apx. 3 inch diameter. The caps (top and bottom) on the left side of the receiver provide parallel and series tuning to the antenna coil. The alligator clips on both caps allow the caps to be easily taken out of the circuit. The detector and trap coils are apx 4.5 inches, 9 point basket weave coils. During most of the contest, I actually set this up with the trap in the middle and the set became triple tuned.

The detector coil is a dual gang Russian variable cap (built in vernier) and the knife switch allowed me to use one or two gangs for detector tuning. The bottom right cap uses the same type of cap and knife switch arrangement for ground leg tuning. The top right cap was fitted with a 10 to 1 vernier reduction for wave trap tuning. The phones are sound powered cobbled from some USI elements and a bogen matching transformer can be seen mounted under the "shelf". I used two diodes at different times during the contest, an FO215 (solo and configured in a Hobbydyne set up) and a schottky diode.

As you can see the radio case "was" a wooden breadbox and the door came off making a nice shelf. On the left side you will see a stand alone inductive antenna tuner, this helped during the contest and is really great for casual listening; with the caps configured in a certain fashion, I can tune 5 or 6 of my regular stations just by clicking the rotary switch on the tuner. I had more points and station count with this year's receiver, but due to high winds just prior to the contest lost my best antenna. I ended up with a sloper apx 80 feet long and about 25 feet at its highest. Lots of fun! It is great to see all the radios that been built.

Dick Kleijer



My receiver is build with separate unit's.

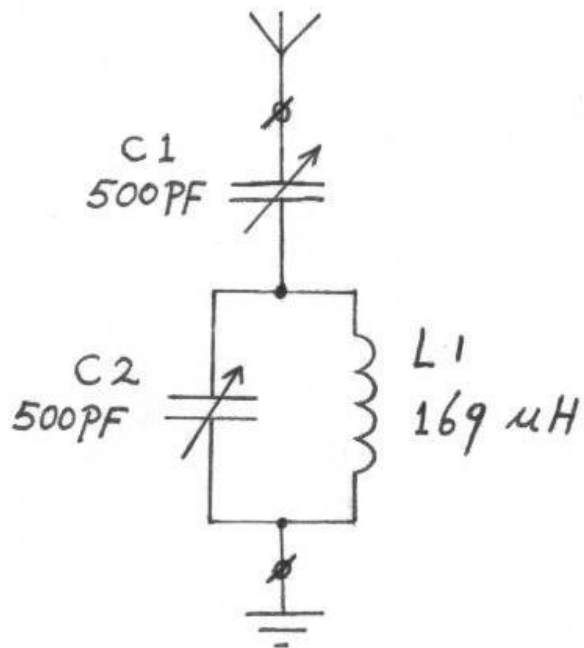
- the antenna unit
- detector unit
- audio transformer unit

The coils are made with litz wire 660/46 and are wound on very low loss polypropylene formers. The diode is a double shottky diode, type: HSMS282K. The transformer unit has a input impedance of 1600 k.Ohm, this is about the impedance of the detector LC circuit, so there is maximum power transfer.

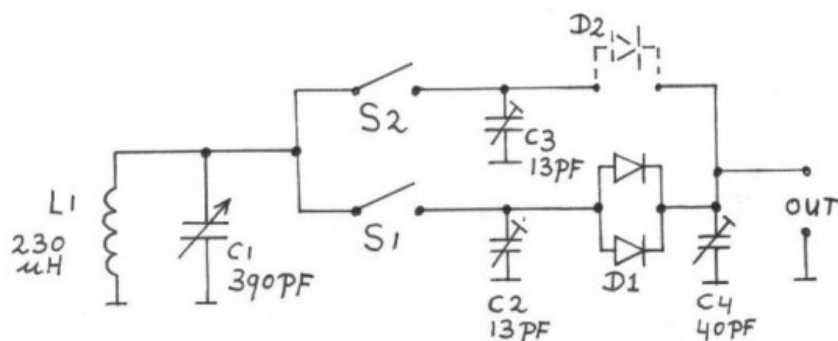
As loudspeaker, I use a driver unit of a horn loudspeaker. The antenna is a 22 meter (72feet) wire, with the highest point on 18 meters (59 feet). On the picture, you see the antenna wire coming down from the top of the mast. More info about my receivers, you will find on my website: crystal-radio.eu



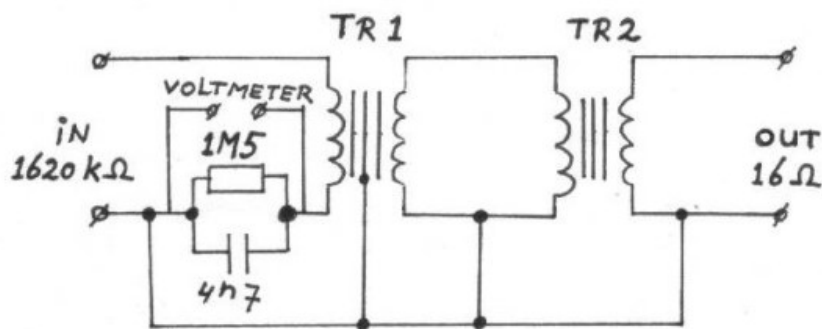
Antenna



Antenna matching unit.



Detector Schematic



Audio matching unit.

[Back to the main radios page.](#)

Select Menu

- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)
- [IAD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

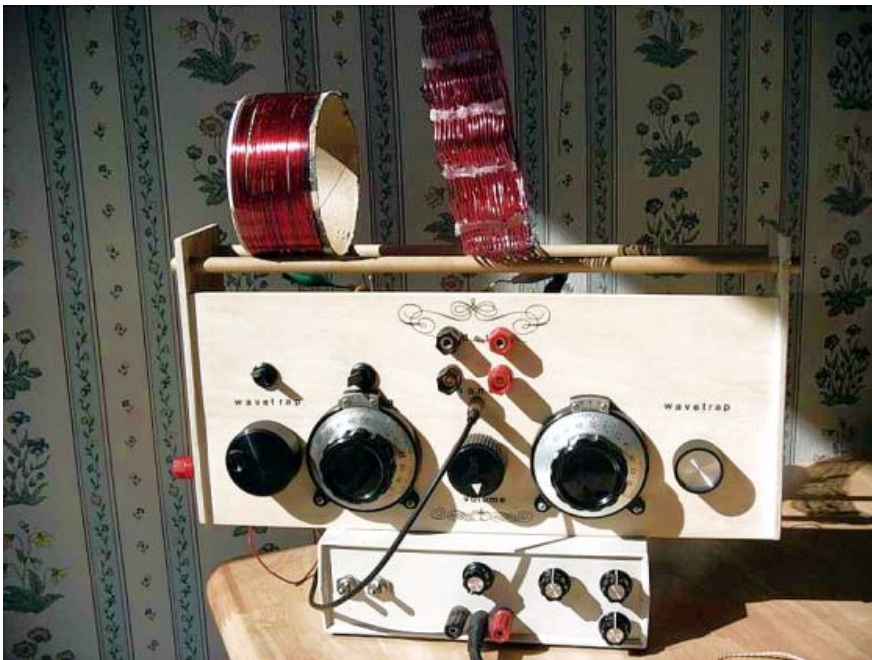
- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)
- [2006 Page 1](#)
- [2006 Page 2](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2006 Contest Entrants

Page 1

Charles Pullen (Chuckster)



Station count was a little better than last year. I modified the metro to have a toggle tuned antenna, added vernier drives for the antenna and detector capacitors and installed an old 5 gang fm tuner to give the detector circuit a selectable bandspread cap.

The antenna is a sixty foot inverted L approximately thirty feet up, and the ground is two four foot copper clad grounding rods tied together. I slapped to inline wave traps together to help tame the bandmasters. I used my copy of Steve B.'s ultimatch for impedance matching, and my head set was two philmore xtal earplugs connected to the ultimatch with a radio shack mono y adaptor.

My coils were severely mismatched and pretty beat up as seen in the photo of the "improved metro", but just ran out of time before the contest began to conjure up a new set of coils. I plan to replace the coils with toroids next year ala the TK2 circuit. Experiments with the toroids look really good but again didn't get them ready in time for the contest.

I'm pleased with the results I got considering the shape my coils were in and the really warm weather conditions we've had ...

Chuck

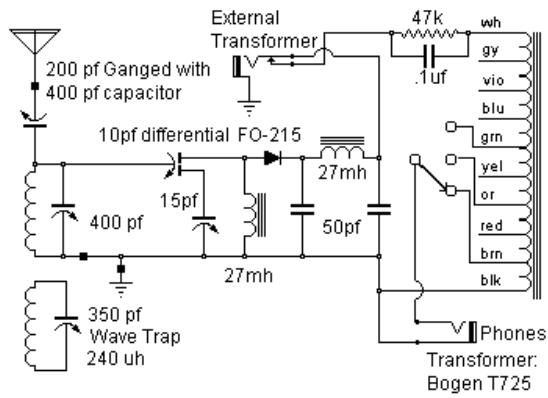


Dave Schmarder



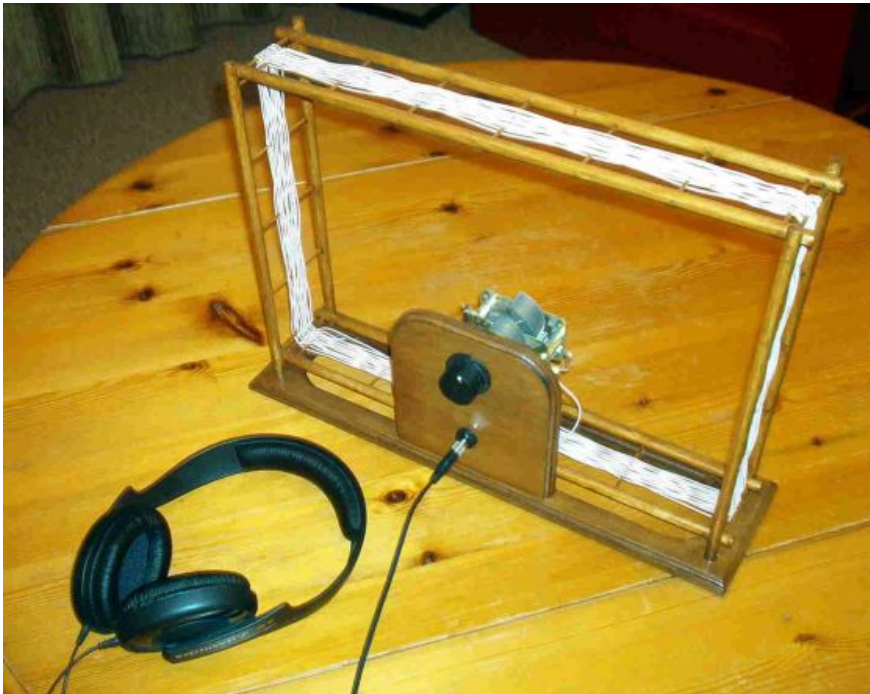
Here is the web page with additional comments, etc. [Dave's 2006 Contest Log](#) [Dave's #63 Radio](#)

...I used my #63 set with the crystal detector on the antenna tuning unit board...The other coil is a wave trap circuit.



Hobby Class Crystal Radio (c) 2006, D. Schmarder

Dick Kleijer

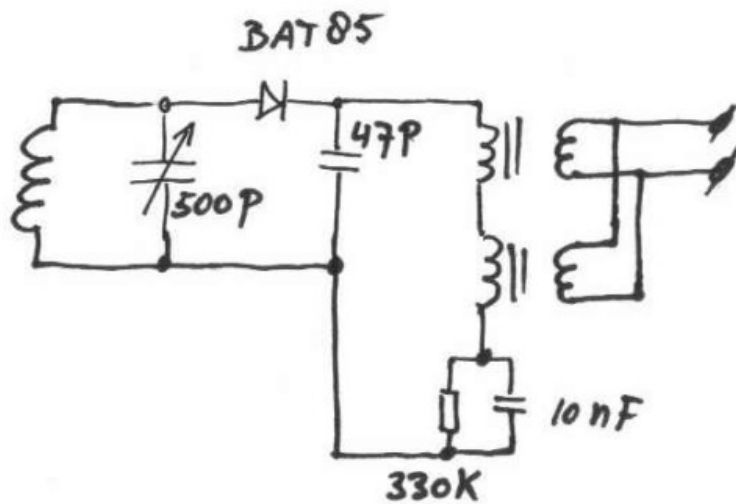
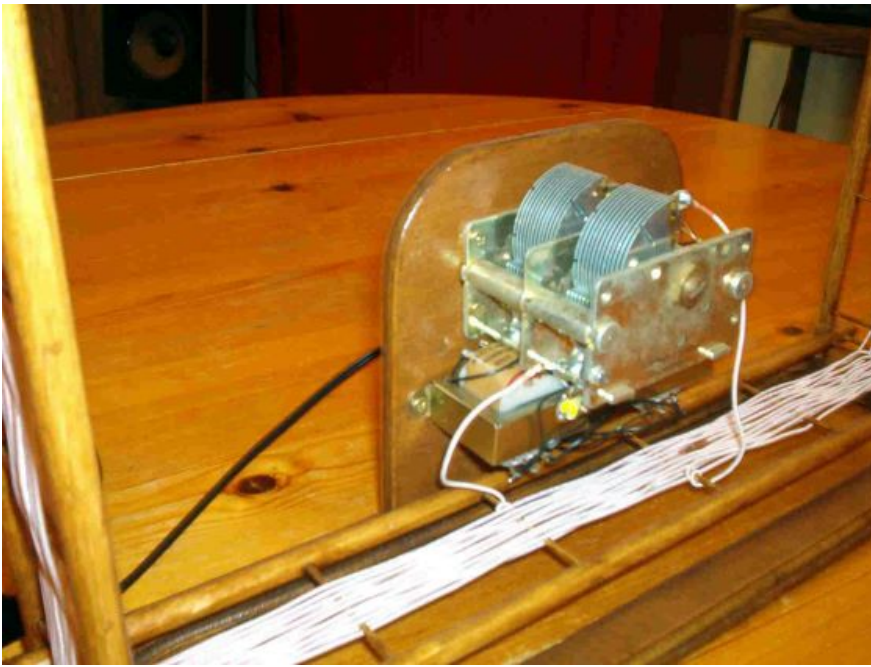


The receiver is a loop receiver with sides of 26x38 cm (10x15 inch). The wire is 660x0.04 mm litz wire (660/46).

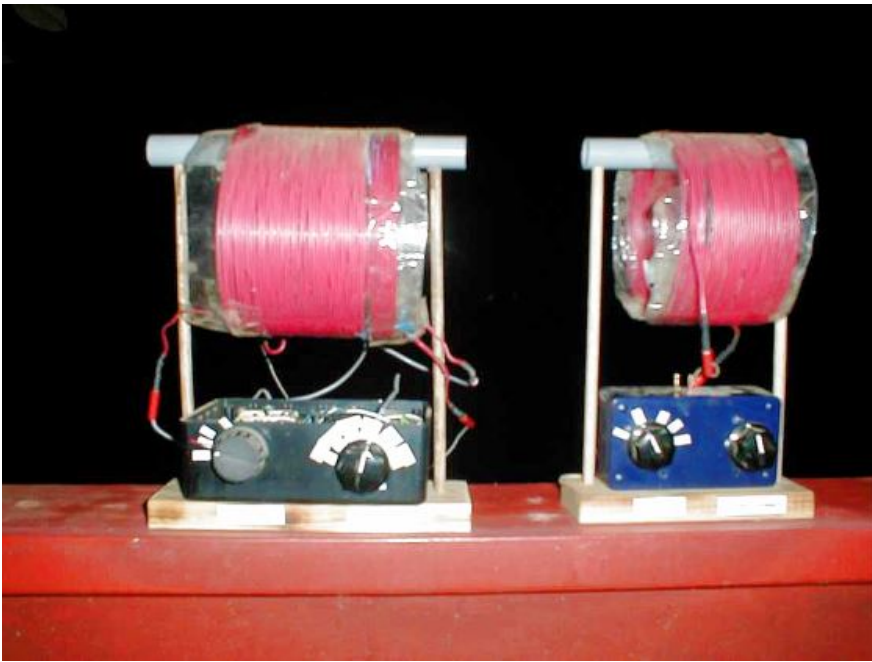
Number of turns: 16

The two transformers have a total primary impedance of 300 k. Ohm. The headphone is a modern 2x32 Ohm type (Sennheiser HD202).

Dick Kleijer



Doug Herigstad



The radio I used is a double tuned set with the coils space wound on a 5" form. (3 liter soda bottle). I built a variation of Owen Pooles' "Project Radio" on his website.

The antenna coil is 35 turns of space wound solid 18ga hookup wire. I used a combination parallel/series Tuggle tuner with separate 365pf vcaps with the series vcap in the ground path instead of between the antenna and primary tank. This gives me kind of a band spread.

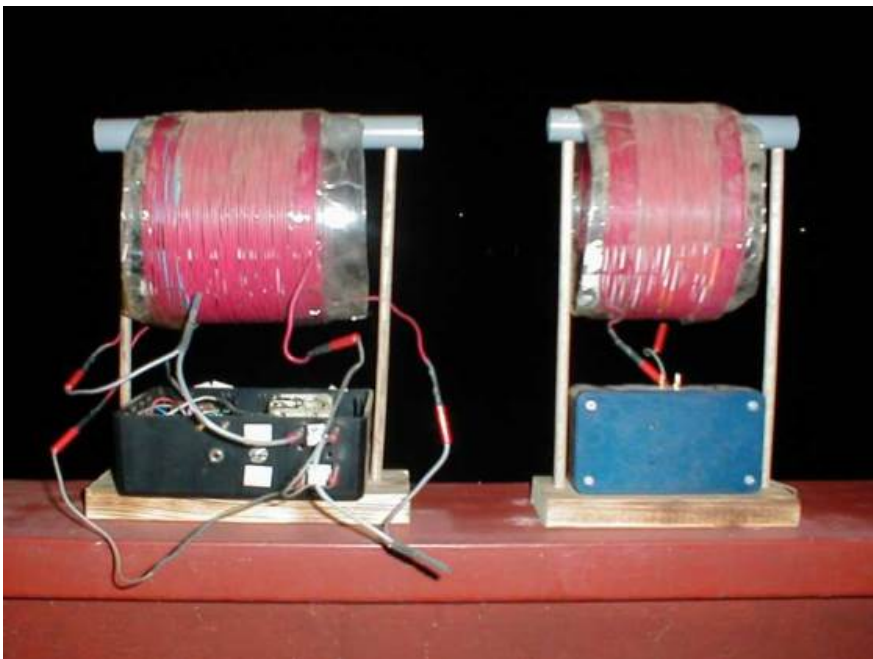
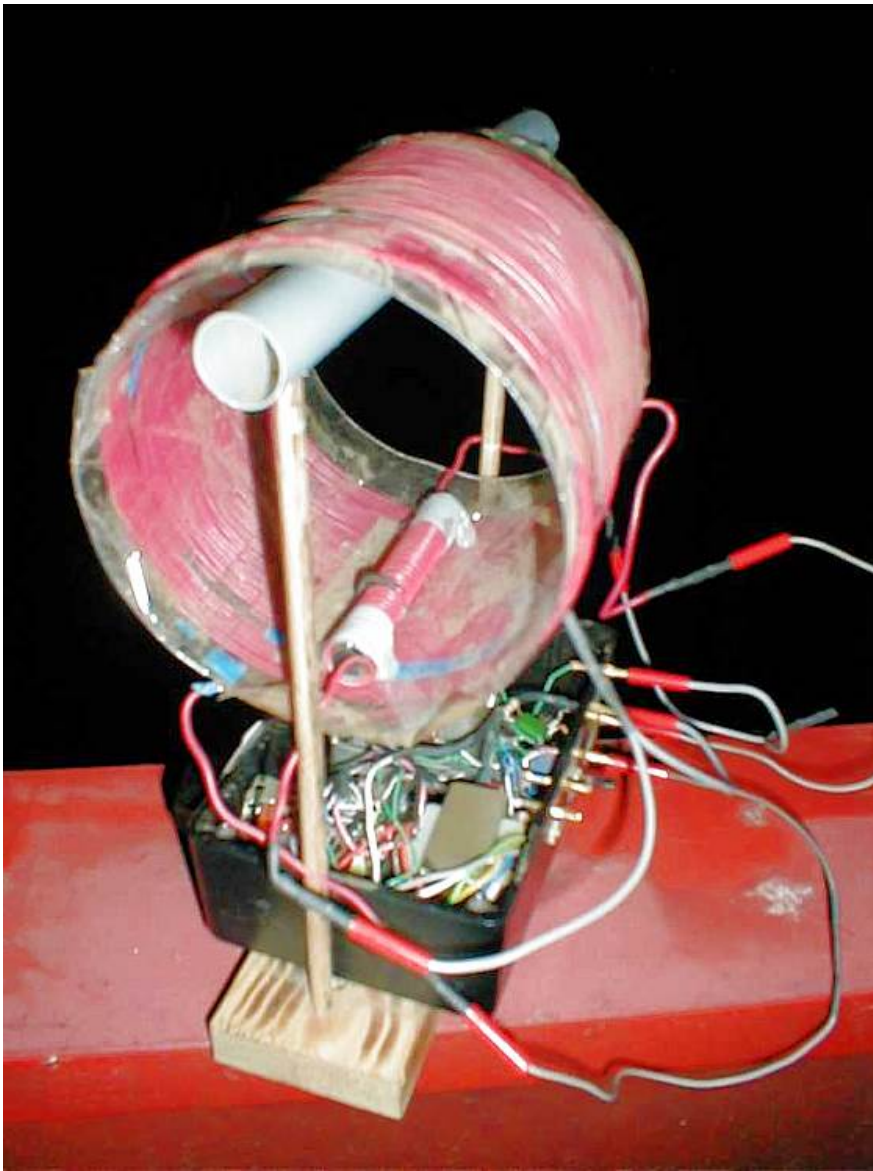
The secondary or main tank vcap was pulled from an old battery set and has a 6:1 vernier built in. The main tank is 47 turns of space wound 18ga solid hookup wire on a 5" form. Only the antenna circuit is grounded to a cold water pipe.

The detector coil is solid 18ga wire wound on a 4" ferrite rod and fastened on the inside of the main tank. The detector itself is a 1N34A diode connected through a 39K ohm resistor bypassed with a .1 mylar capacitor connected to the white lead of a Bogen T725 transformer.

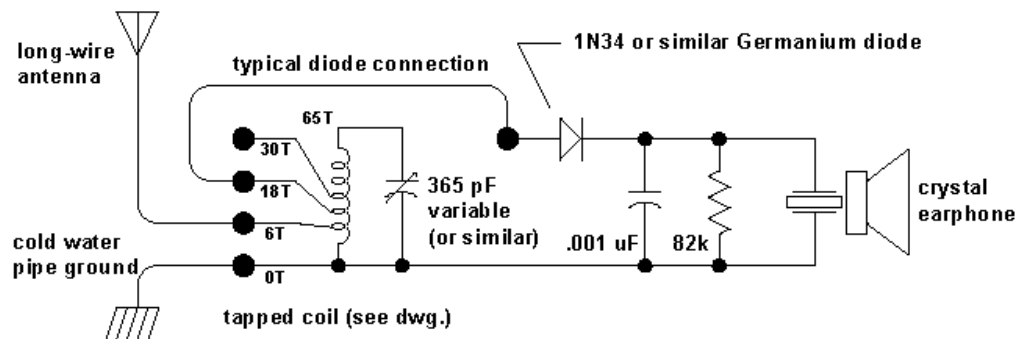
The headphones I used were the elements pulled from a discarded hearing impaired telephone series wired into a set of shooters muffs. These sound elements are much more sensitive than regular telephone elements. They work the best on the 375ohm tap off the Bogen. Much better than my 2000 ohm Newcomb magnetic headset.

The antenna itself is 12ga stranded wire 50' high and 100' long on the horizontal part oriented east to west. The far end is the west end ...

Regards,
Doug Herigstad



Ed Phelps



Crystal radio with typical connections for a long wire antenna and good ground connections. The diode is connected for weak signals and moderate selectivity.

I've made a few minor changes to the schematic ...

- (1) The fixed value cap is 250 pf instead of 1000 pf.
- (2) The fixed resistor is 100 k instead of 82 k.
- (3) I used an audio transformer plus a set of "big cans"...instead of the Xtal earpiece. (my skull is still distorted from those big cans) I think it'll still work without the fixed capacitor and resistor if I go back to using the Xtal earpiece. This would leave me with a set made from just four parts. I may try running it, in that fashion, next year.

73, Ed NN2E

Evan Haydon



The SUPERCRYSTODYNE

I decided to get serious about the 2006 crystal radio contest and make the maximum commitment to do my best. I knew that I could do better than what I did in the 2005 contest. I wanted to see what a maximum commitment would produce. I started the day after the 2005 contest ended. The following is committed, devoted, crazy, or whatever you want to call it. The following documents over 400 hours spent toward this goal. After all, I'm retired and have plenty of time. What better way to spend it?

First thing was to build a new and better crystal radio that had the maximum efficiency that I could possibly put into it. The design would use the same basic circuit as I had been using. The coils had to have the highest Q possible. I needed a test instrument to measure Q. Thank you Ebay for allowing me to purchase one. Now to get some good wire to use. I purchased some different gauges of stranded silver teflon wire. Thank you

Ebay again. I wound many many coils. I found the proper size for maximum Q at the frequencies to be received. No larger or smaller wire size is better. No larger or smaller coil diameter is better. No more or less turns of wire is better. Maximum Q is found. Now, one pair of coils in the receiver will not maintain maximum Q all the way across the broadcast band. I use two different sets of coils. One set for 530-1100 kc. One set for 1100-1700 kc. Now I have maximum Q across the whole broadcast band! These coils are the basket weave type held together with hot glue. They are air core coils using 22 guage stranded silver teflon wire. The two sets of coils can be swapped on the radio in less than 60 seconds.

Both of the variable capacitors that I use have porcelain insulation for the stator plates. The range of tuning must cover as much of the 180 degree range of the variable capacitors as possible. This must be done for both sets of coils with no critical lossy switches or taps on the coils. This was accomplished by using dual section capacitors and a couple trimming or padding fixed silver mica capacitors as necessary. The only tap on either coil is one on the secondary coil for the detector crystal. The position of that tap was determined by actual on the air listening for maximum selectivity and sensitivity in that order. The support for all RF parts is white 1/4 inch thick plastic. All wiring in the radio is made using stranded silver teflon wire.



Now I had to have calibrated dials to quickly and accurately go to any frequency. Each of the two tuning shafts pass through the two panels. Each has a six to one vernier attached to the panel. So, each shaft has a 36 to 1 tuning reduction! On each shaft between the two verniers is an insulated flexible coupler. This isolates the tuning knobs from the RF circuits of the receiver to eliminate hand effect capacitance to the receiver. On the front of the rear vernier I placed a four inch diameter plastic disc. This disc is directly fixed to the shaft of the variable capacitor. On this disc I have paper dials calibrated for both coil sets. Each coil set uses a different colored ink. They are held on by double sided tape for easy removal. Thus, I can remove and make a new one in about a half an hour.

The detector is two parallel 1N34 diodes. They were selected for maximum sensitivity to a weak signal by on the air testing. I have a 50 microampere meter in series with the diode detector. A signal of less than 1 microampere is 100% readable. I am about 700 km from Chicago and Denver. It is not unusual for KOA or WBBM to come in at a full scale reading of 50 microamperes.

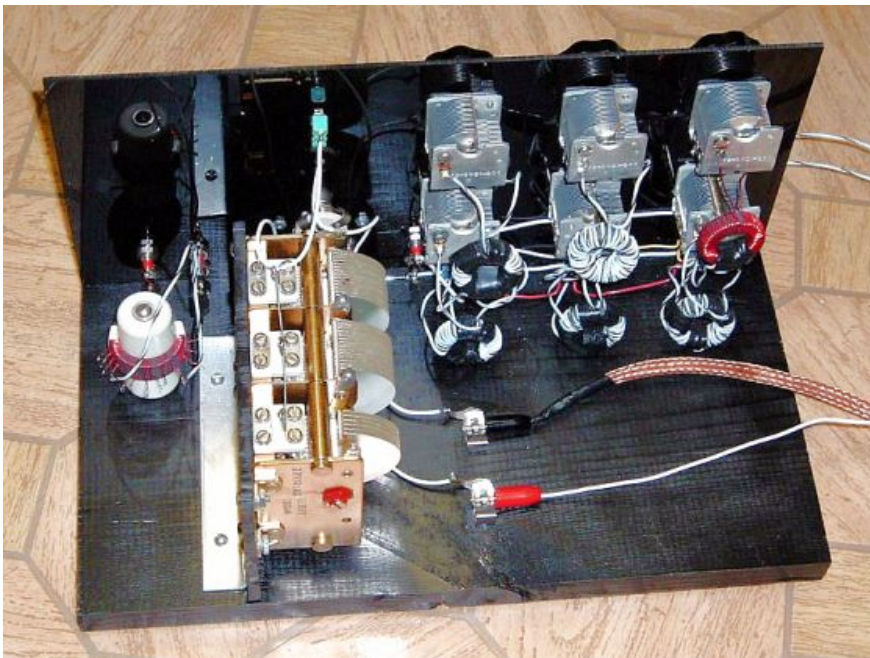
The headphones that I use are unique. I started with two USI balanced armature low impedance elements taken from an old sound powered handset. I first took them apart. I removed the coils. I took all of the wire off of the coils. I rewound them using super hair fine wire from a 6000 ohm sensitive relay coil. Each headset coil now measures well over 2000 ohms dc resistance. They were installed into a cheap, but nicely padded, headset that I already had. They are very sensitive. I also like the frequency response of them as they reproduce higher audio frequencies better than the lows. The lows tend to be "muddled" on crowded frequencies.

Last summer was antenna experimenting time. I put up, tested, and took down more different sizes, lengths, heights, and orientations of wire than I can remember. Needless to say, considerable time was spent on this aspect of my endeavor. What I wound up with was a wire about 200 feet long that generally runs east and west. It is up 40 feet at the east end, 60 feet up at a point 120 foot west of that, and then continues 80 feet southwest of that ending up 25 feet above ground. The down lead comes off at a point close to the 60 foot support. All wire in the antenna is 18 guage stranded silver teflon wire. I have a ten millihenry choke to ground at the listening bench. Before I put that on, I saw 3/4 inch sparks from the antenna.



Designing filters to kill local stations became a must. I have a one kilowatt station only two kilometers from me. The Q meter came into use again. I ordered a number of each of three different sizes of torroids from Amidon. The coils for the traps are designed for maximum Q at the operating frequencies. I needed five for the top of the band and only one for the bottom of the band. They are wound using 22 guage stranded silver teflon wire. Each has a small 365 pf capacitor in parallel with it. There is a small winding on each for coupling. These small coupling windings can be put in or out of series with the antenna with a flip of a switch. Any number of traps can or can not be used at any time. They are all mounted on plastic to preserve their Q. These traps work very well and tune very sharp. This filter unit is a separate unit from the crystal radio. Also on this unit is a variable capacitor with poreclain insulation and silver plated plates. It is used to trim the antenna when needed.

By now, I was getting a good start on my quest. Next up was getting familiar with the broadcast band. This means lots of time spent listening. I listened almost every evening and night from the middle of August until the contest started in January. I estimate that I spend at least 300 hours listening and gathering information. I systematically monitored every frequency at all times of the day and night and carefully documented which stations could be heard at what time and on what frequency. The more times that I heard an individual station, I knew that on any given day there was a good chance of my hearing it. All of this information was used in the contest for maximum efficiency of the time available. This is critical because many stations can be heard only during a small window at sunset. Last year in the contest I didn't even listen at this time of day figuring that all of these signals were too weak to be heard. Wow, was I missing the boat or what? This is the best time to listen. I added almost 150 stations this fall to my all time heard list by listening during this period of the day. The information I then had for possible reception of stations was put to use in the 2006 contest. It worked well. 144 stations logged on the first day! The broadcast band conditions on that first night were the best that I have experienced in the past two years. They were nothing short of amazing. I put in 14 hours of listening and logging on that day alone. On every day of the contest I was by the radio for a couple of hours around sunrise, off and on during the day, and from 4 PM until about 11 PM. A person just can't miss that one more station logged. I put in at least eight hours of listening and record keeping for the contest for each of the nine remaining days of the contest. Almost 100 hours during contest week.



Total time spent for construction, preparation, and contesting turned into somewhere near 400 hours of fun. Every day listening is different. That's what makes it so interesting and fun. The band conditions were very good almost every day of the contest. Some nights produced longer

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2006 Contest Entrants

Page 2

Peter Kerttula



The rig for the 2006 contest is a Jim Frederick design, the Hobby Dyne 2. I added crystal switching and use a reduction on the tune side capacitor.

The headphones are sound powered made from SP mike elements. A bogen transformer handles the output transformation.

The antenna is a 100 foot wire bent to fit the lot! A cold water pipe handles the ground.

Mark Roliff



The unit at the left rear is the antenna tuner. The coil is 33 turns of #22 magnet wire. The cap. is a dual 365pf variable purchased from the XSS.

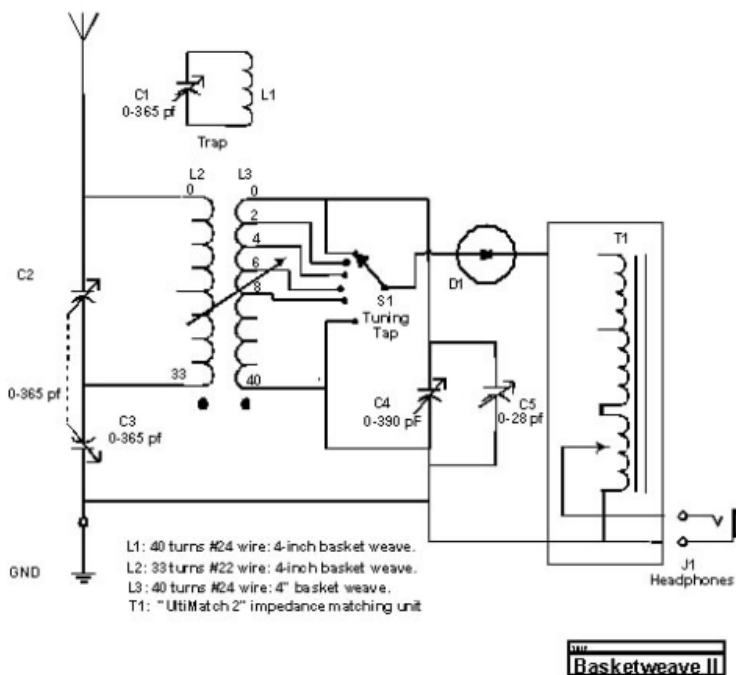
The unit at the center rear is the detector tank. Its coil is 40 turns of #24 magnet wire. The front cap. is a dual section variable salvaged from a junked radio. The smaller front section is not used. The rear cap. is used for band spread.

The unit at the right rear is the inductive trap. The coil is 40 turns of # 24 magnet wire. The cap. is a single gang 365pf purchased from the XSS.

At the right front is the detector stand mounted on a salvaged trophy plinth. The mass of the wood and marble lowers the detector stand's sensitivity to vibration. All logged stations were heard with the cat whisker and galena crystal. At the start of each listening session, I would tune in a weak local station using a germanium diode and then disconnect it and match the signal's strength and clarity to a hot spot on the galena crystal. The whole process took less than a minute. The crystal was purchased from the XSS.

The unit at the right front is my version of Steve Bringham's UltiMatch 2. I used a pair of RCA "Big Cans" connected to the Red tap of the Bogen transformer.

Mark Roliff



..Note that the audio impedance matching unit is a copy of Steve Bringham's UltiMatch 2 ... only the Bogen T725 transformer was used, and the Benny was bypassed ...

Mark Hampton



My interest in crystal radios was less than a month old when I found out about the DX contest. The result is my entry which, for reasons that will become obvious, I have dubbed the Comedyne. If you find any of this humorous rest assured that you are laughing with me and not at me.

I entered the formula for calculating coils into a spreadsheet. Later on I modified the formula so that I could enter the diameter instead of the radius and promptly forgot that I had done so. The coil form I used was 4 inch PVC that I turned down and threaded at 22 TPI. When I went to calculate the length I entered a 2 instead of 4 and came up with a length of 5 inches. This resulted in a coil of 800 uH instead of the 280 to 300 uH that I wanted. I was too green to recognize that this was not right and of course the coil was all soldered up before I found my mistake.

The one thing that went right on the coil was the winding and tapping. I had tried various methods of making taps on a coil with little success. Seems I don't have the patience, eyesight and requisite number of arms to do a decent job of it so I came up with a new (at least to me) idea. I drilled line of small holes at every 5th thread. I placed the coil form in the freezer for a while to shrink it and then quickly wound the coil. Then I scraped the enamel off each wire that passed over a hole with a sharp pointed hobby knife. I bent a small hook in the end of each tap wire passed it through the hole, turned it 90 deg and "hooked" the winding. I placed a tiny dab of flux on the wire and then folded the tag end of the hook down tight on the coil. A dab of solder finished the job. The result was a nice tight, neat (if slightly over-wound) coil. I bridged all the taps together with a loom to help take the stress off of the solder joints.

The only caps I had were some I ordered from Antique Electronics to play with because they were cheap. They are 4 section totaling 240pf and 540 deg. rotation. I found out why they are so cheap. Nobody in his right mind would want a VC designed for PC board mounting. I finally figured out a way to mount them and only destroyed one in the process. I didn't have time to order a shaft extension so I machined one out of some plastic rod.

When selecting a diode from two dozen 34As two of them accidentally touched together and the sound level really jumped up. I called them a pair and mated them forever. My antenna is an almost 300 foot wire running due north/south. It ranges from 15 to 20 feet off the ground. The ground is a piece of ½ inch black pipe driven 6 feet into the ground.



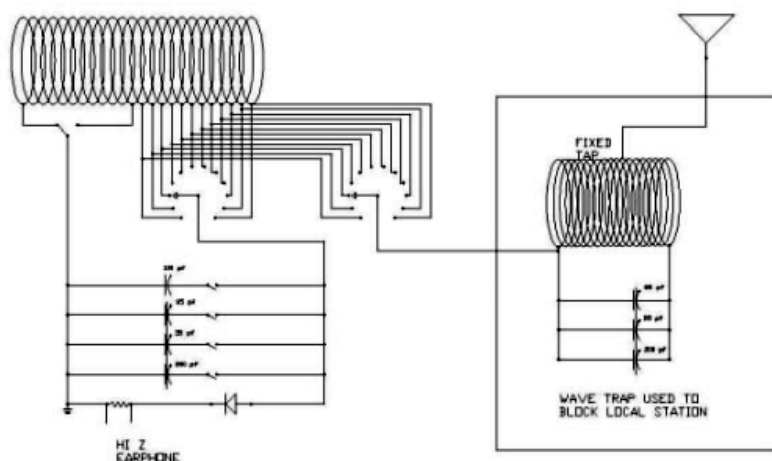
I used 12 pos. rotary switches from Antique Electronics for the antenna and tuner taps. For the other switches I used the slide type strictly for looks. (Certainly not for the "ease" of mounting!) The tuning knob and slide switches are from Radio Shack.

Four of the slide switches are for the capacity. 200pf, 30pf, and 85pf on the variable and a 150pf fixed cap. The other switches the ground to switch out half the coil. My grand plan was to be able to do some short wave tuning. (I did manage to do some.)

I'm an admirer of Art Deco and Arts and Crafts design so I set out to make a case for the radio that would look at home in a room designed by Frank Lloyd Wright. I also wanted it to look like it had been around for 50 or 60 years. The sides are the very last scraps of some birch plywood from a project I did over 6 years ago. The remainder is solid oak and some oak trim that I modified. An artfully sloppy stain job (left dark in cracks and crevices and lighter on the corners and edges) with Minwax English Chestnut stain gives the look of age. It is finished with three coats of Deft semi-gloss. I am more or less pleased with the result. The trim above the faceplate is a little too wide and I'm not crazy about the flat top. I may do something about the top.

The faceplate is 1/8 in plastic that I found laying around the engineering shop at work. I made a milling template on Autocad and adhered it to the plate. After milling I soaked it off with some WD-40. I then modified the Cad drawing for the graphics and printed it out on some parchment looking card stock that I found at Hobby Lobby. Adhering the graphic onto the faceplate in proper alignment was another comedy of errors. Needless to say there are some creases and wrinkles that worked out perfectly in my plan for the "aged" look. Two coats of spray poly were applied to protect the paper.

The back plate is a 97-cent clipboard from Wal-Mart. I cut it to fit and shot it with some cheap black spray paint. It has the perfect cheap-black-fiberboard-radio-back appearance. Maybe because that's what it is.

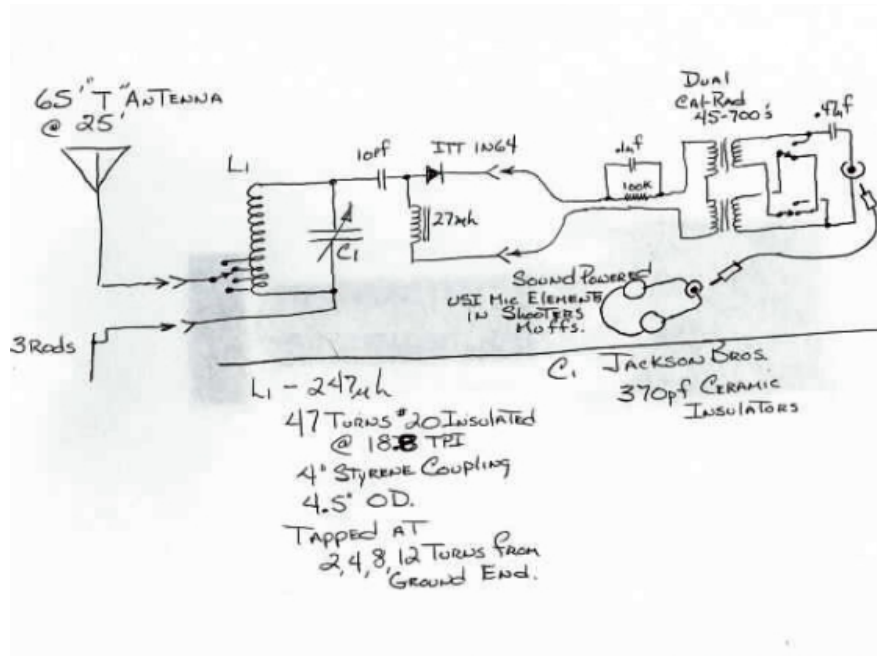


The set tuned very broadly. That may have to do with the huge coil. A local was smeared all over the dial in the daytime and half of it at night. A hastily constructed trap was used to block the local until they signed off at 11PM. Then I would reconnect the antenna directly to my set. Even switching out half of the coil had little effect on the selectivity. Strong stations like WHO and WWL covered a lot of my tuning range. Using the trap as an antenna tuner may have helped but I wanted to stay within the hobby class regulations.

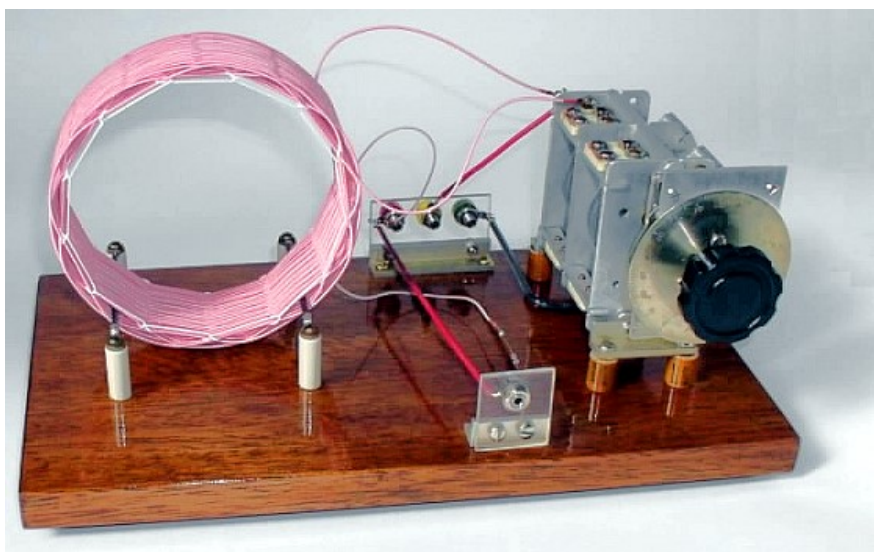
Still I think I did pretty well. I managed to get about 35 stations for a score of just over 55,000 points. The furthest was CBC in Vancouver BC. I will wind a proper coil for the set when time allows.

Michael Branson





Mike Tuggle



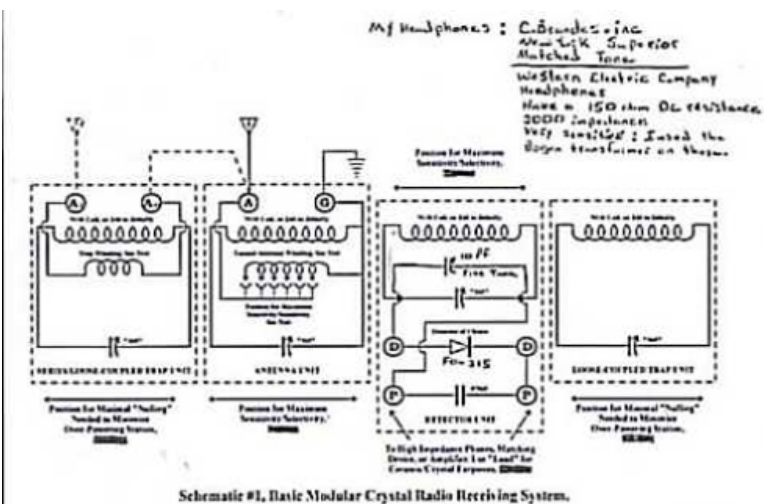
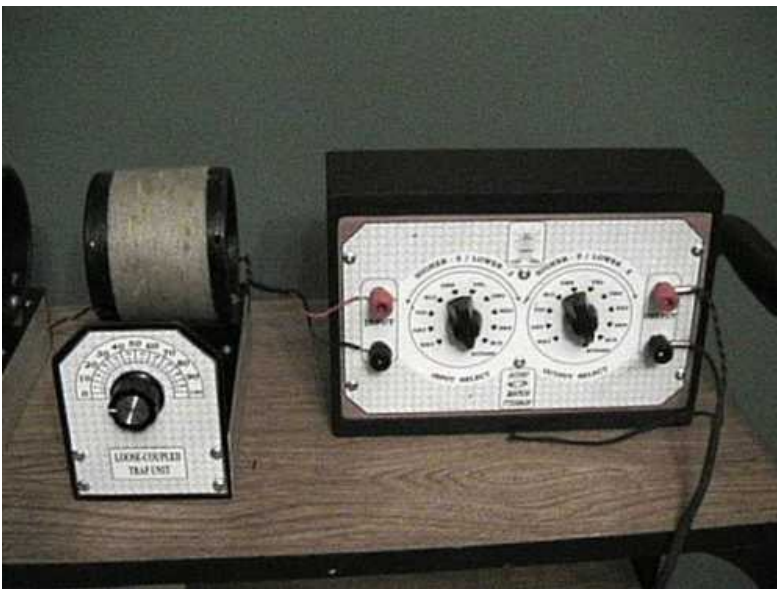
...Turned out to be quite a contest. Conditions were very flat until the second Friday (20 Jan.); then propagation really picked up. Area T-storms produced a moderate static level Sat. & yesterday, but good prop. seemed to persist.

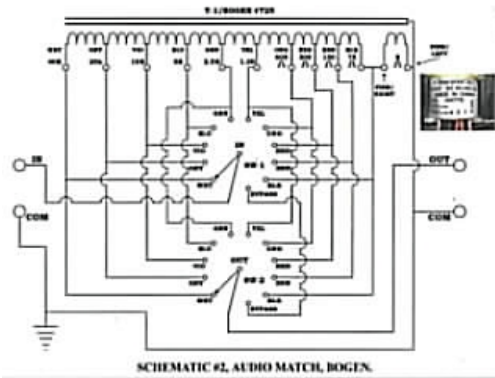
Same set as last year's event, except I did put a lead telluride rockstand on the stronger local stations. (This was the same detector I heard KRVN 880 Nebraska on several contests back. But that was on the Lyonodyne 17 set.)

Two of the stations heard were new: KXTK 1280 never heard before on any set; CFAC 960 first heard in last year's 1-AD contest.

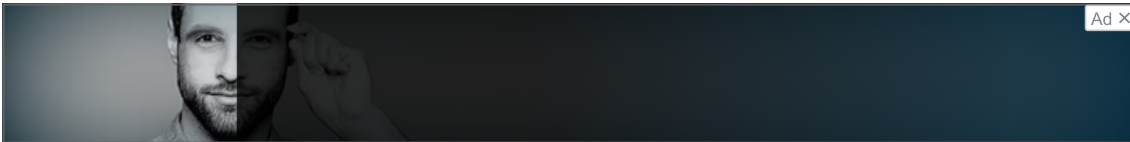
Mercifully a clandestine neighborhood super noise source held off during prime listening hours ...

Sean Whitacre





[Continued on Page 3.](#)



Select Menu

- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)
- [IAD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)
- [2006 Page 1](#)
- [2006 Page 2](#)
- [2006 Page 3](#)
- [2007 Page 1](#)
- [2007 Page 2](#)
- [2008 Page 1](#)
- [2008 Page 2](#)
- [2008 Page 3](#)
- [2008 Page 4](#)
- [2009 Page 1](#)
- [2009 Page 2](#)
- [2009 Page 3](#)
- [2009 Page 4](#)
- [2009 Page 5](#)
- [2009 Page 6](#)
- [2010 Page 1](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2006 Contest Entrants

Page 3

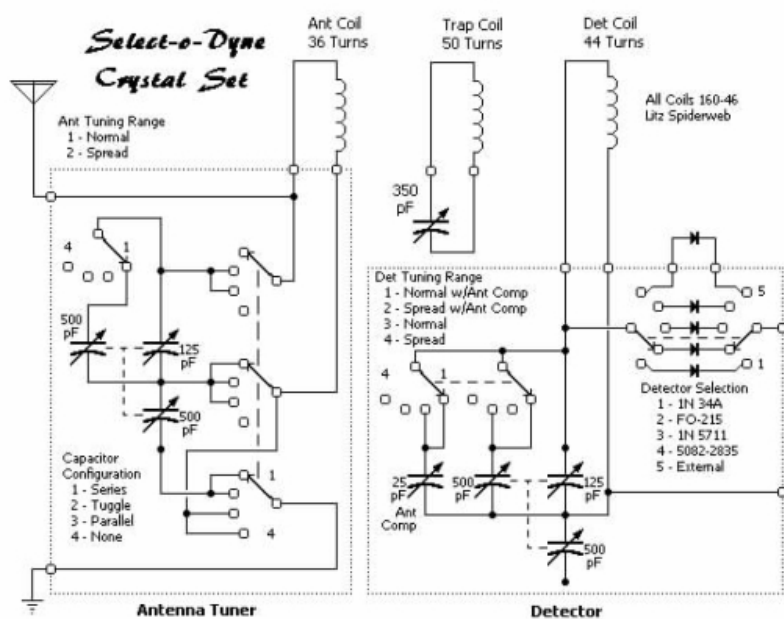
Steve Hewlett

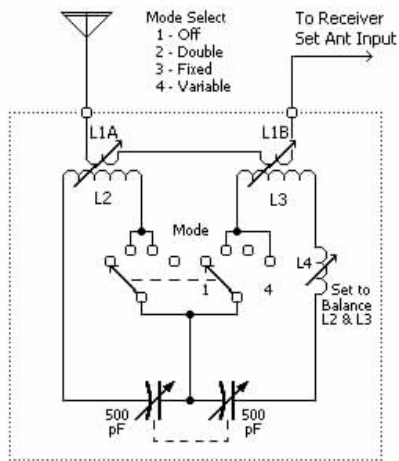


My 2006 contest set has three coils which slide on a polystyrene tube. From left to right they are wave trap, antenna coil, detector coil. All three coils are space wound (one wire width spacing between turns) copper wire; #24 ga. for wave trap and detector coils and # 23 ga. for the antenna coil.

A Single Jackson 365 pF VC is used on the wave trap coil and a single Jackson 410 pF VC is used on the detector coil. A dual Jackson 410 pF VC is used on the antenna coil in a Tuggle arrangement. The diode is a FO-215. A Calrad transformer and a "benny" (are included).

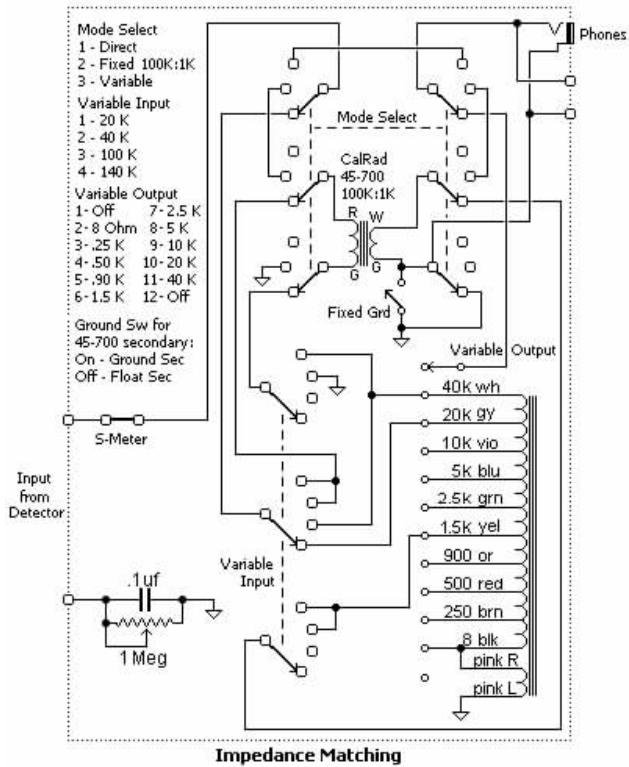
Tim Kilboy



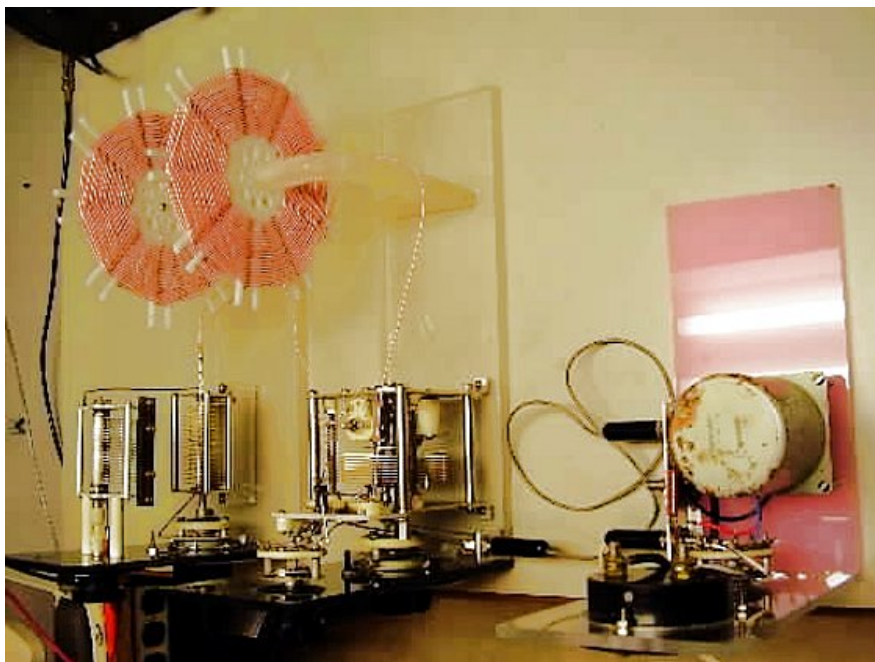


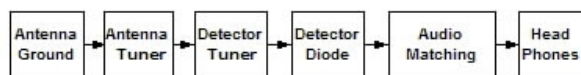
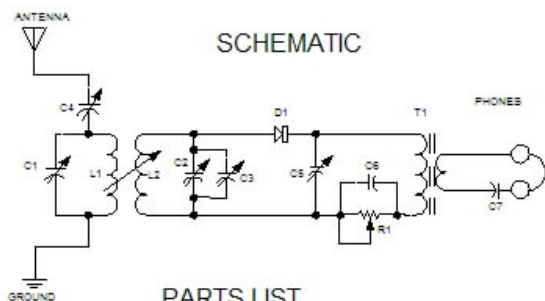
In-Line Trap

L1A - 1/2 of 20 turn Binocular Coil
L1B - 1/2 of 20 turn Binocular Coil
L2 - 52 T on 3/8"x2" Ferrite Rod
L3 - 48 T on 3/8"x2" Ferrite Rod
L4 - 2-20 uH Ferrite Slug Variable Ind



Wayne Thelen



BLOCK DIAGRAM**SCHEMATIC****PARTS LIST**

C1 - 435 pF Variable Capacitor with vernier drive
 C2 - 506 pF Variable Capacitor with vernier drive
 C3 - 0 - 50 pF Variable Capacitor, (trimmer)
 C4 - 450 pF Variable Capacitor
 C5 - 3 - 45 pF Variable Capacitor, (trimmer)
 C6 - 0.1 μ F capacitor
 C7 - 0.47 μ F capacitor
 D1 - 1N34A Germanium diode
 R1 - 500 K-Ohm pot
 L1 - 36 1/2 TURNS 660/46 Litz wire on 9 pt spider web coil form; L = 160.3 μ H; 5.70" O.D.
 L2 - 37 1/2 TURNS 660/46 Litz wire on 9 pt spider web coil form; L = 171.1 μ H; 5.85" O.D.
 T1 - VINTAGE RCA Input Transformer - P=250 K Ohms CT ; S=600 to 200 Ohms
 Phones - (2) U. S. Instruments UA1614 "Sound Powered" UA1614

Full details can be seen at Wayne's Website

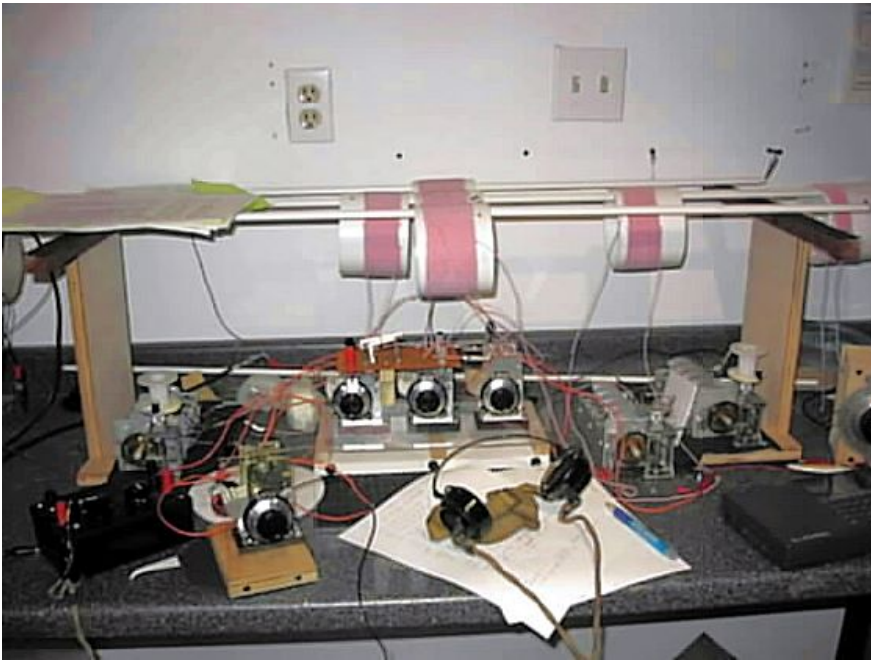
Jack Bryant

I used the same set in the BCB Open Class Category for 2004, 2005, and 2006. I tried the Hobbydyne in my toroid set, but my set worked better without it...too much signal loss. The selectivity of the set was already pretty good.

I did use an outboard cap this year in series with the set's built-in dual section cap. I liked it so much that I will probably modify my set and put the cap inside. Part of the reason for this is that my antennas are large with a lot of capacitance to ground. The standalone antenna cap adds a lot of flexibility.

Another mod to the set was a neon bulb connected from antenna to ground. This year we had some pretty good thunderstorms during the first part of the contest. When the bulb lit the room up, well, it was time to shut down! (I exaggerated just a little bit here.)

I did encounter a problem that I will mention, and perhaps you can avoid it. I wear glasses, and the constant pressure of my headphones against the ear piece of the glasses gave me a terrific headache. I apparently injured a nerve since it took me several weeks to recover. I am wondering if it is time for laser surgery so I can eliminate those glasses. You notice I didn't say stop using headphones...

Gil Stacy

Set: Same set as last year. Headset: RCA Big Cans tuned> and recharged by Steve Bringhurst.

Antennas: 88' top loaded vertical up 50' and 180' inverted "U" up 50'. Ground is the post 2004 DX DX contest ground described at the bottom of [this page](#) Set was the same as used in 2005. The antenna was a top loaded vertical cage antenna.

Lem Morrison

Set was the same as used in [2005](#). The antenna was a top loaded vertical cage antenna.

Alex Perez




Crystal Set DX 2006 Receiver

Despite the shortcomings that befell my design last year, the exact same setup is employed this year. The antenna spans a length of approximately eighty feet in a northeast to southwest orientation, rising to a height of forty five feet at the far end from the initial twelve feet. A convenient cold water pipe serves as a ground and is connected with a fifteen foot length of wire running horizontally. In order to minimize losses, an eight inch diameter twenty turn coil consisting of fourteen gauge wire is utilized and tuning is accomplished with a high quality vernier driven variable capacitor across the coil. A small ceramic trimmer loosely couples the antenna to the top of the tank circuit. Last year, the advantages of Schottky diodes were realized and a single BAT28 performs admirably in the design. A high impedance transformer matches the high impedance detector output to the low impedance DLR No. 5 headphones. These sound-powered headphones were most graciously provided as a prize by the contest committee two years ago and were instrumental in greatly boosting the DX capability of the receiver. A simple inductively coupled trap must be in place at all times. At night, it opens up a few hundred kilohertz around WXEM while during the day, it enables the reception of weaker stations across the band.

Band conditions seemed different this year but proved to be advantageous. After considerable experience gained during the preceding contest and an overall greater familiarity with band conditions, I promptly logged the majority of the typical nighttime band markers. The ensuing evenings resulted in only a few new nocturnal DX catches. Regrettably, I should have exploited the terrific grayline conditions to a greater extent this year. Nonetheless, many stations and points were gained due to a more casual approach to grayline DXing. Typically DX within fifty kilohertz of WXEM is impossible, even at night. Nonetheless, stations were logged on 1410, 1500, and even WXEM's own frequency of 1460 when it decided to completely shut down for a short while. Following in the pattern set by my previous participation, I did surpass my score considerable while greatly enjoying the Contest.

[Back to the main page.](#)



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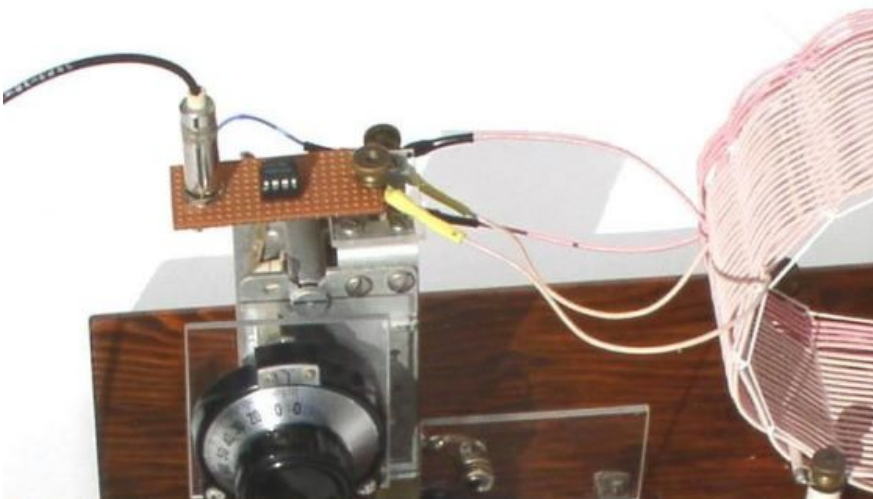
- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)
- [IAD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

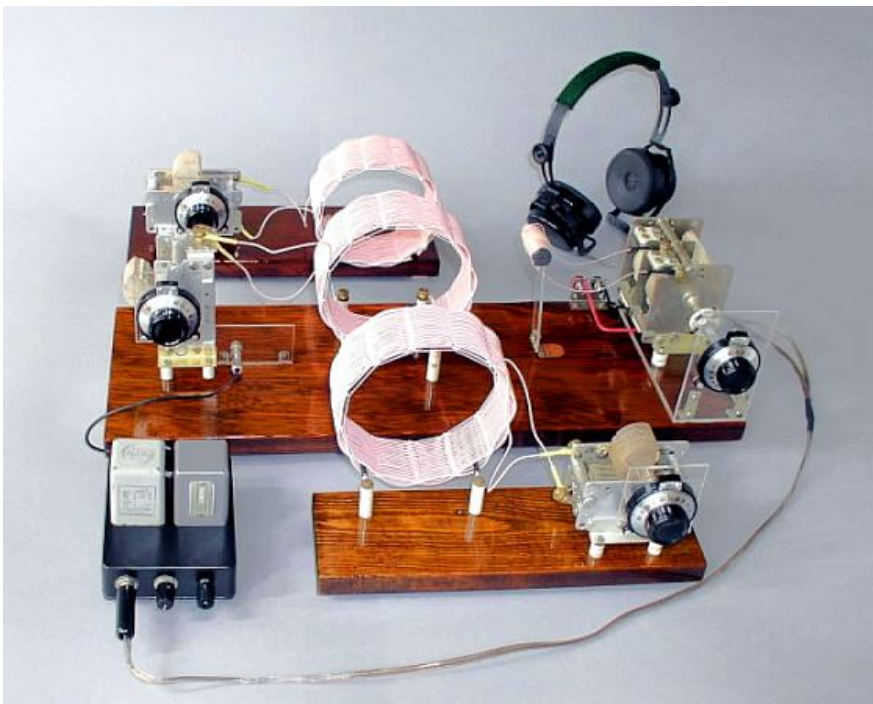
Crystal Radios Of The 2007 Contest Entrants

Page 1

Mike Tuggle



This detail shot shows the original Lyonodyne C2 and L2. The entire set can be seen below.

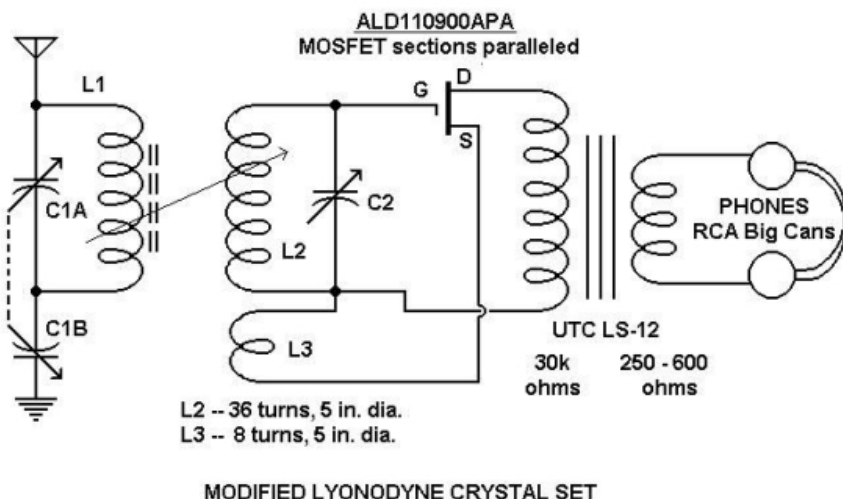


The MOSFET detector is mounted on its own circuit board along with its output jack. This board mounts to the set using the thumb nuts that attach L2 to C2. L3, a darker shade of pink, is mounted in back ('cold' end) of L2. The original diode output at bottom-center was not used.

To me, the most impressive feature of the ALD MOSFET detector was its superb selectivity. This makes sense, since the GATE presents essentially a zero load to the tuning tank, thus preserving its Q.

Volume, especially on weaker stations, was noticeably less than that delivered by the single diode detector. This may be partly due to the less-than-ideal matching between DRAIN-SOURCE and the audio matching and output circuits. Didn't have much time to play around with matching before the contest started.

Many thanks to my 'Benefactor' who provided the much-needed ALD110900A's during our recent national shortage.



For my 2007 XSDX set I adapted one of the popular ALD110900A zero-voltage-threshold MOSFET detectors to the Lyonodyne. The highest voltage, at the top of the secondary tank, is applied to the MOSFET GATE. An added-on 8-turn coil L3, closely coupled to the 36-turn secondary coil, feeds the DRAIN-SOURCE and audio load.

Evan Haydon



Another fun Elmer Memorial Crystal Radio DX Contest is over. I used the same crystal radio that I used last year with only a couple of improvements. I bought some 420/46 litz wire for my coils. The Q of the coils used in the crystal radio is now 800 from 550 khz to 1200 khz. The Q then tapers down to 600 at 1700 khz. My six toroid traps are all wound with the same litz wire and have a Q of 400.

My antenna is the same as last year except that both ends are now up 40 feet. I am now using a good set of Big Cans for headphones with a bogen T725 transformer for matching to the radio.



I did my usual listening to the broadcast band almost every evening and some mornings from the middle of September up to contest time. I made a lot of notes. These paid off in time saved finding and identifying the largest number of stations possible during the contest. It is amazing how fast some stations appear and fade away at the gray line. One has to be on the right frequency at the right time to catch them.

The band conditions here were very good the first day of the contest. The second day was really pretty good too. After that, the conditions were generally poor with some spotty openings. Here are some of my statistics for the contest.

Day	Hours spent	Stations found
1-12	15.5	166
1-13	9	34
1-14	11	23
1-15	12	19
1-16	11	19
1-17	6	8
1-18	7	8
1-19	6	3
1-20	5	5
1-21	8.5	4
91 hours		289 stations

Some of the stations heard during the contest:

WWRV 530 khz South Caicos Islands 1987 miles
 CMQ 670 khz Cuba 1483 miles
 CM 530 khz Cuba 1481 miles
 CKWX 1140 khz Vancouver, BC. Canada 1400 miles
 KNBR 680 khz San Francisco, CA. 1379 miles
 WBZ 1030 khz Boston, MA. 1333 miles

My personal choice for best catch during the contest:
 KGBC 1540 khz Galveston, TX. 250 watts 804 miles
 Good copy for an hour on the evening of Jan 19.

On an average winter day I can always hear about 55 stations. Most are within 175 miles. One everyday station heard is 5 kw at 247 miles. My all time list of stations heard on my crystal radio that ID in English is now 412 stations. Let's do it again next year.



Bob Jewell



ANTENNAS:

1. Long Wire approx. 200 ft long, up 80 ft, lead-in approx. 100 ft, all one-piece litz to rig.
2. Four element 20M colinear antenna, fed with 300-ohm feeder, used as three antennas. Up 85 ft.
3. Misc. Spotter small antennas.

ANTENNA TUNER:

Seven inch diameter, 6.5 inches long, ceramic form, space wound, 90 turns, bare silver plated wire, selectable on each turn.

Capacitor: 4 section, 570 pf each, Variable, ceramic insulated silver plates. Wired series and parallel.

RIG:

1. Antenna coil: Large (?) litz on 4.5 inch diameter opaque plastic pipe form, close wound. Detector: 185/46 litz on 3.5 inch diameter ceramic form, space wound. Q ~ 650. (HP-4342A)

2.Grounds (2): house ground system, 200 gal LP tank underground, water filled. Connected with 50 ft of RG-8 coax, inner conductor and braid paralleled.

3.Diodes (22): different TYPES, on ceramic rotary switches, instantly selectable. Favorite soldered in.

4.Capacitors: ceramic insulated, silver-plated, approx. 550 pf.

5.AUDIO: Bogen T-725 plus 200K to 1000 ohm
45-703, miniature transformer.

6.HEADPHONES (3): USI, 1247-A, mike elements wired in series. (2) N.I.B. (Ebay, no name) soundpowered headphones, one set series, one set parallel wired.

7.All traps, (3), ceramic insulated caps and litz coils.

8.“Tugle” type circuit.

9.“S” meter: Olson TE-380 meter, 0-8.7 ua,
Heath: 0-200 ua, series connected.

10.All internal RF wiring 185/46 litz.

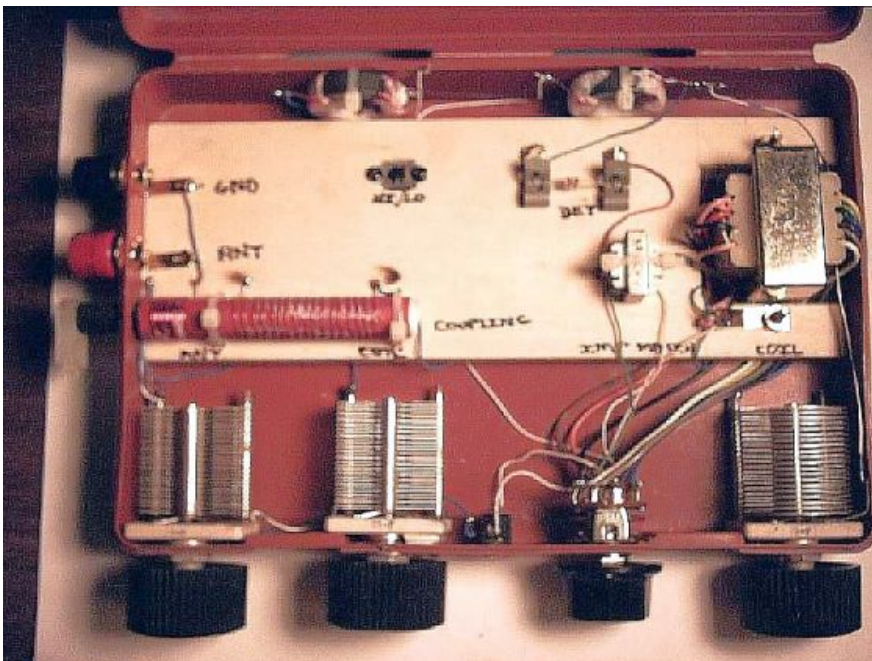
11.ALL components mounted on Plexiglas sheets.

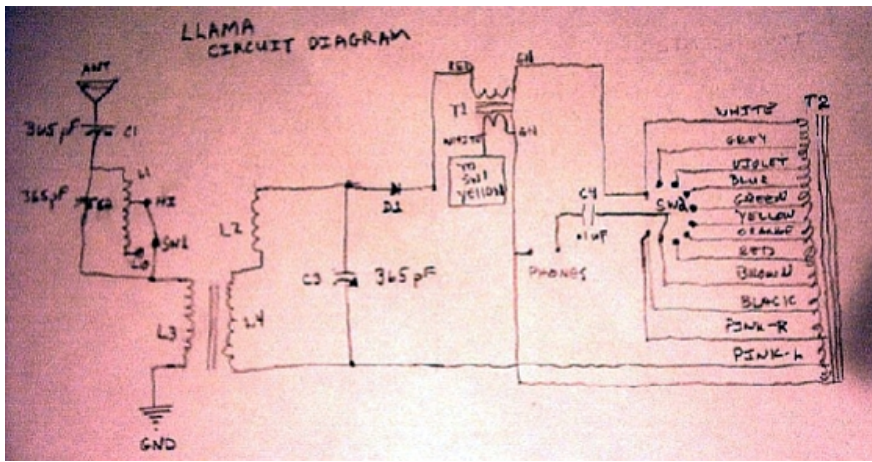
12.Many “Classic” vernier dials.

ACCESSORIES:

- 1.Icom R-70, spotter
- 2.Chrysler van auto radio, spotter
- 3.Icom PCR 100 with PCR 1000 software, spotter.
- 4.B&K Signal Generator, E200-D, frequency verification.
- 5.B&K, 1851, Frequency counter , frequency verification.
- 6.H.P., 4342A, Q meter. (max Q ~ 1000).
- 7.Heathkit, QM-1, Q meter. (max Q ~ 500).

Charles Pullen (Chuckster)

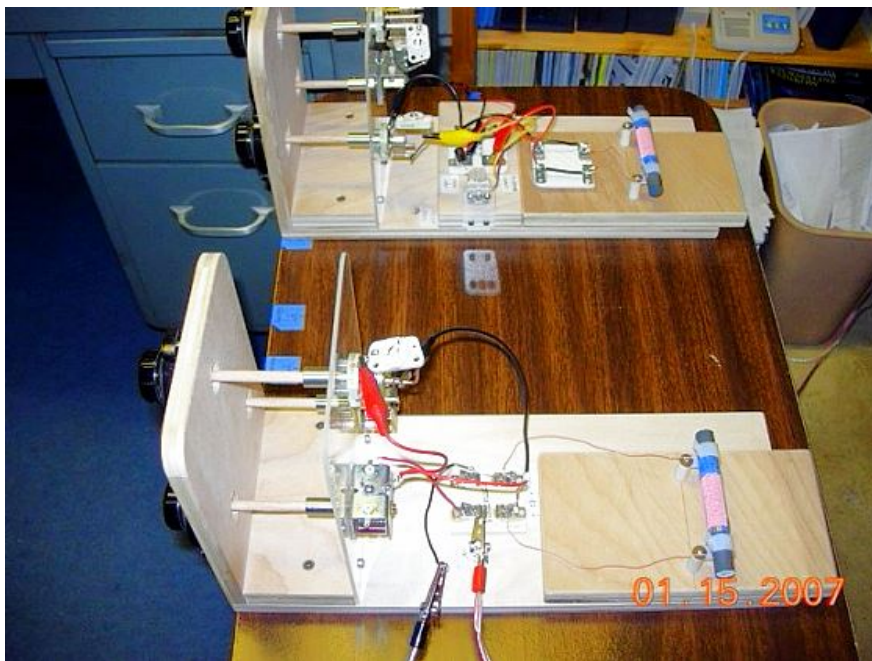




This circuit is a hybrid of Steve Bringhurst's select to match circuit and Dave Schmarder's toroid set #45. The design goal for this radio was high performance in a small package. The case is 9 inches x 6 inches deep x 1 3/4 inches tall. The toroids are FT 114A-61 amidon cores, L1 tapped at 12 turns. The toroid coupling coils are wound on a small tube with an ID slightly larger than 3/8 inch. The first coil is close wound, 15 turns. The second coil is triple spaced, seventeen turns. Both coils 24 awg and are approximately 29 uH with coupling accomplished by moving a 3/8" x 4" ferrite rod in and out of the coupling coil's tube. The detector used was a pair of HP 5082-2835 schottky diodes. The phones used was a pair of Philmore xtal earplugs in parallel thru a radio shack mono Y adaptor. The antenna used is a half sized g5rv ham antenna approximately 25 ft up, center conductor & braid of the coax connected together. Ground system is 3 four foot copper clad steel rods 8 ft apart connected with #14 awg solid bare copper wire.

The detector cap sometimes has a very slight but noticeable bit of hand capacitance at times, it seems to depend on the weather. All in all a good performing radio.

Dan McGillis





For the 2007 Crystal Set DX Contest, I used an all ferrite-rod double tuned set-up: Detector - ATU - Wave Trap.

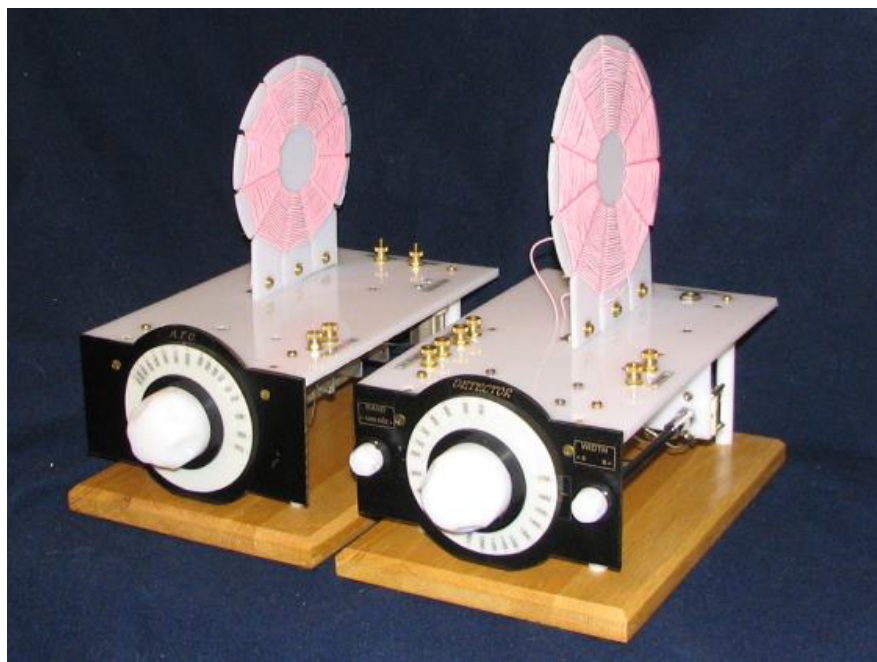
The inductors are Amidon Ferrite 61 0.5"x4" ferrite rods with 165/46 Litz coils wound directly onto the rods. All capacitors have ceramic insulators. Detector tuning is split into 3 ranges to cover the broadcast band. Each range has it's own capacitor, trimmer and 8:1 vernier dial. The "Tuggle tuned" ATU is split into two ranges - each with its own capacitors and 8:1 dials. The inductively coupled wave trap has one range and a 48:1 vernier. A FO-215 diode is Hobbydyne coupled to the top of the detector coil - no taps. Diode output goes to a Bogen T-725 transformer then to two USI UA-1614 sound powered elements in series - or - standard telephone handsets in series.

The antenna is an end-fed 200' inverted Vee with it's apex at about 40'; ground is a 4' pipe driven into the ground.

Dial number-to-frequency calibration curves for the detector and ATU were converted to vernier dial numbers for every 10 khz of the broadcast band. A station heard on a digital read-out Yaesu FT-757GX spotting radio could be quickly converted to crystal-set dial numbers - and vice-versa.

I think the bandspreading and calibration expansion are the best features of this set-up.

Dave Schmarder

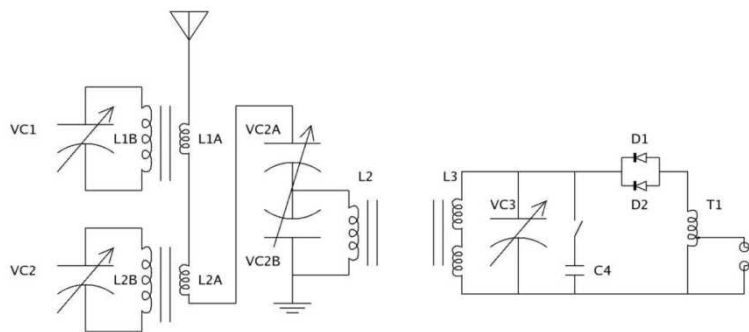


- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2007 Contest Entrants

Page 2

Jeff Welty



Parts List

VC1 - 50 to 450 pf variable capacitor
 VC2 - 30 to 300 pf variable capacitor
 L1A - 16 turns 26 gauge magnet wire around FT-87 toroid
 L1B - 60 turns 26 gauge magnet wire around FT-87 toroid
 L2A - 6 turns 20 gauge "bell" wire around FT-87 toroid
 L2B - 60 turns 26 gauge magnet wire around FT-87 toroid
 VC2A - 35 to 145 pf variable capacitor
 VC2B - 38 to 455 pf variable capacitor
 L2 - 243 μ H inductor, about 30 turns of scavenged low-grade litz on a 1/2" by 5" ferrite rod
 VC3 - 50 to 500 pf variable capacitor
 L3 - Contra-wound coil (43/145 μ H) on 1/2" by 5" ferrite rod, 22 gauge magnet wire (switch for hi/lo inductance not shown)
 C4 - 330 pf fixed capacitor
 D1 - FO-215 diode
 D2 - 1N34A diode (circa 1980)
 T2 - Bogen 725 transformer
 Phones - Single USI UA-1614-7 soundpowered earpiece

* L2 is replaced with a 35 μ H coil for high frequencies (>1200 Mhz), about 20 turns wound on a couple of rectangular ferrite bars taped together.

[Click here for the large schematic view](#)

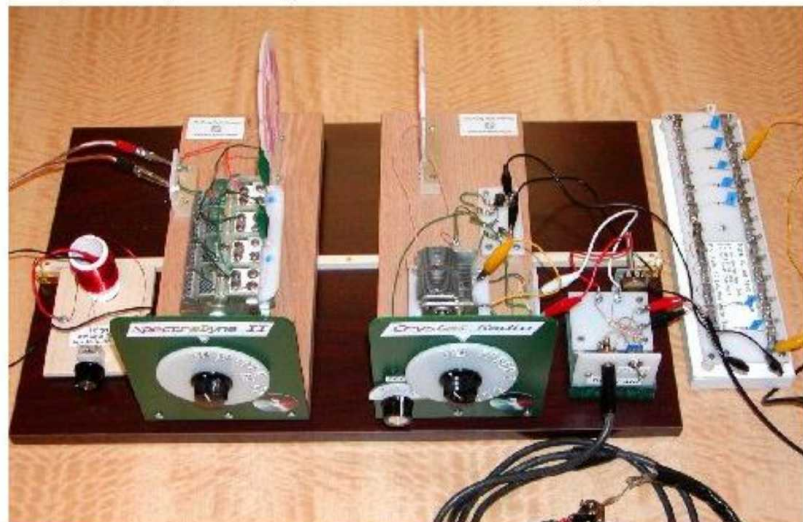
The variable capacitor on the antenna coil is from a radio in that I remember being in my sister's room in the 1970's, (which I dismantled for parts sometime at the end of the 70's, and made my very first crystal set with), and the detector coil is wound around a ferrite rod from the first radio I ever owned as a teen age boy, also back in the 1970's, and died about 4 years ago so I scavenged the ferrite rod from it.

The basic radio is mostly built from parts literally scavenged out of other radios over the years. The only "new" parts are the bogen 725 transformer, FO-215 diode (thanks Dave Schmarder) and sound-powered headphones.

Strong memories in this set for me, and hearing stations fading in and out really brings back memories of the days when I'd listen to my radio, hearing far away stations and caught up in the wonder of it.

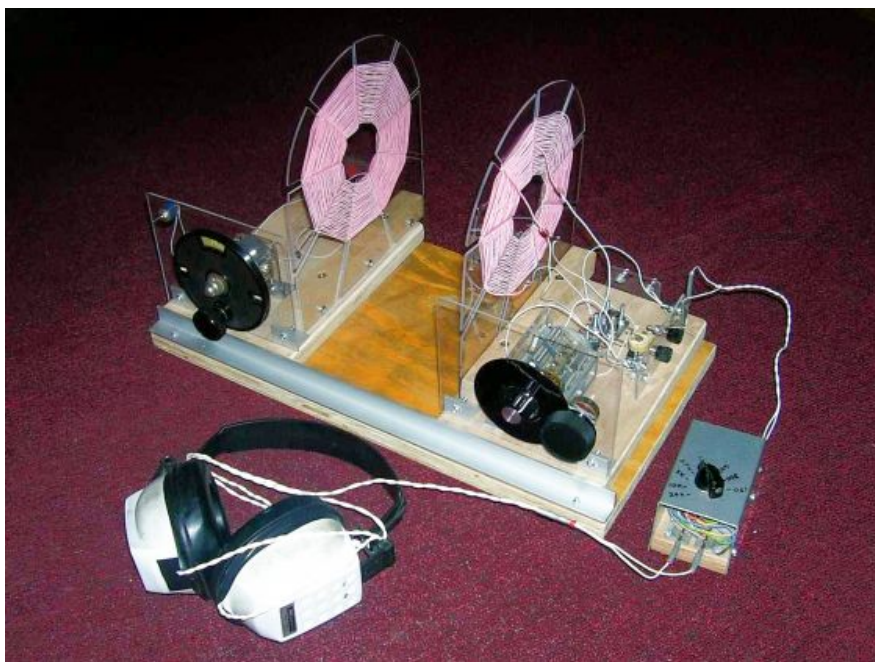
Otto Danby

SpectraDyne II
 Double tuned, Tuggle
 Antenna Cap.: 4/270Pf
 Detector Cap.: 2/270Pf
 Spider coils; using 165/46 Litz, 2" hubs, L1=40turns, L2=50turns
 SEC 25Pf Cap. and 27uH choke
 Detector FO-215 in test rack
 Headset 4400 Ohm magnetic
 Antenna's: #1 75' AWG 20 solid, #2 75' AWG 14 stranded, #3 88' AWG 14 stranded
 Ground One 8' x 1/2" copper rod pounded in about 6.5'
 Wave Trap 126 turns AWG 30 and 15 turns AWG 22 Capacitor 20Pf to 165Pf
 Tuning Aid Accepts headset jack and Radio Shack Mini Amp, switch to either or.



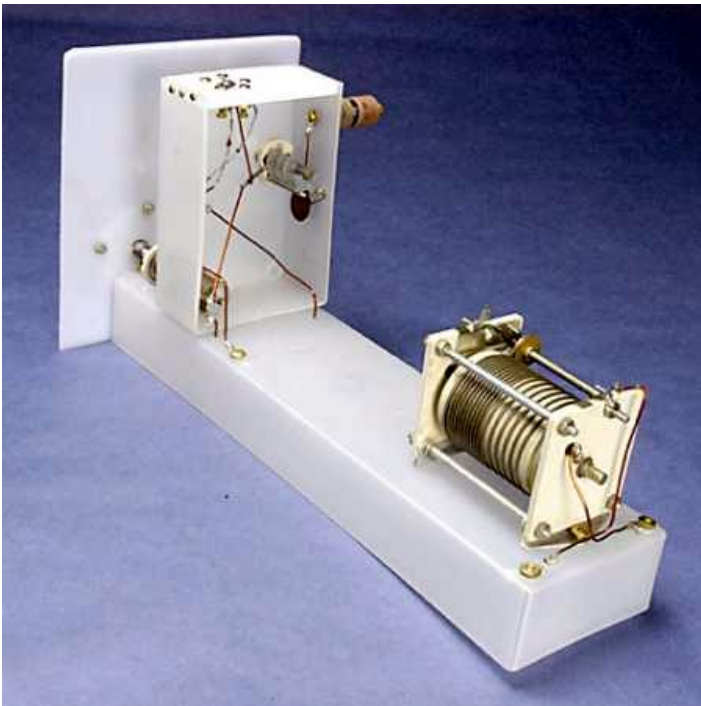
[Click for large view.](#)

Peter Kertulla



2007 CRYSTAL SET CONTEST SET

The rig this year is all new. It is double tuned with 660 litz spiderweb coils. Both capacitors use reduction drives for easier tuning. The detector coil was changed at the last minute to a contra-wound configuration...the jury is still out as to the impact this made. I think I may use separate plug in coils for HI and LO band next year. The antenna is the same as last year... 100 foot end fed up about 25 feet. Headphones are sound powered elements in a reused headset with a bogen transformer that has switched impedances.

Robert Golding



My short wave set is very simple.

It consists of a tank circuit composed of a small Johnson roller inductor with a small 100pf silver plated variable cap. I connected another small variable as an antenna trimmer and included a small trimmer to ground. It has a diode selector arrangement including a single generic Radio Shack germanium (black band) and choices of one two or three paired Schottky IN5711s. I found it necessary to add a bias attachment for the IN5711s.

I had an outboard Benny setup that plugs in between my matching transformer and the set. Therefore I added a tiny watch battery to the wiper and one end of the rheostat. The bias really perks up the IN5711 diodes.

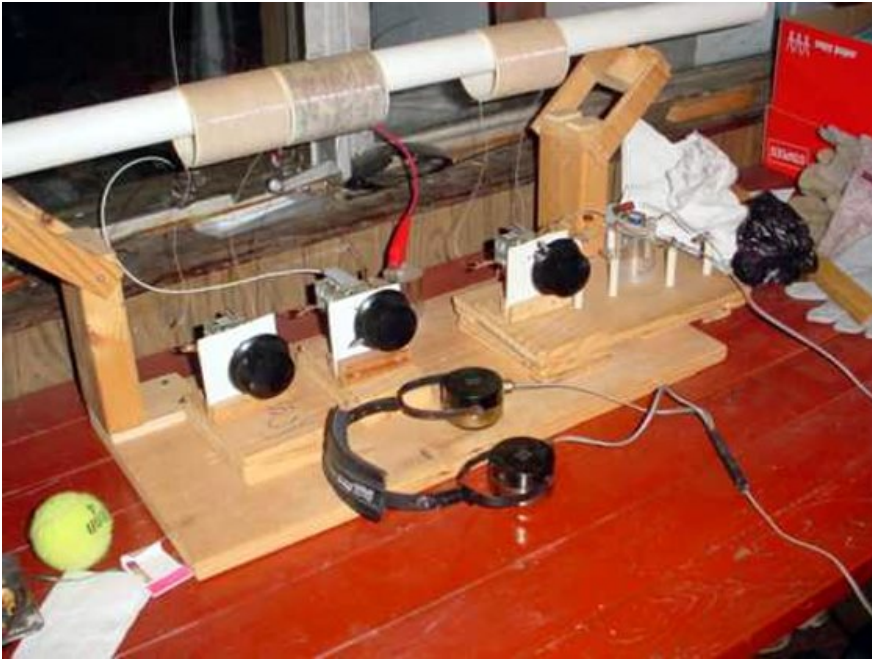
My headphones are Western Electric sound powered matched with a UTC Ouncer transformer.

The antenna trimmer proved to be ineffective. So, I tried Steve B's cap string which helps somewhat.

Naturally I wasn't quite ready when the contest started. So I got through the first couple of nights with the diodes still on clip leads.

I used a couple of small door knob caps for the antenna cap string which is overkill, but I sort of like the look of it.

Steve Hewlett



2007 Crystal Radio Contest Radio Set Description

My 2007 contest set is the same as my 2006 contest set. The set has three coils which slide on a polystyrene tube. From left to right they are wave trap, antenna coil, detector coil. All three coils are space wound (one wire width spacing between turns) copper wire; #24 ga. for wave trap and detector coils and #23ga. for the antenna coil. All three coil forms are 3" diameter polystyrene tube. The inductance of each coil is approx. 251 uH.

A single Jackson 365 pF VC is used on the wave trap coil and a single Jackson 410 pF VC is used on the detector coil. A dual Jackson 410 pF VC is used on the antenna coil in a Tuggle arrangement. The diode is a FO-215. A Calrad transformer and a "benny" is used in the detector circuit to match the SP headset - USI 1614 - I am using. The antenna is a 3-wire flat top approximately 75 feet long and 13-18 feet high. Ground is a series of three 8 foot copper plated steel rods driven all the way in the ground four feet apart.

Wayne Thelen



[Wayne's Newest Set](#)

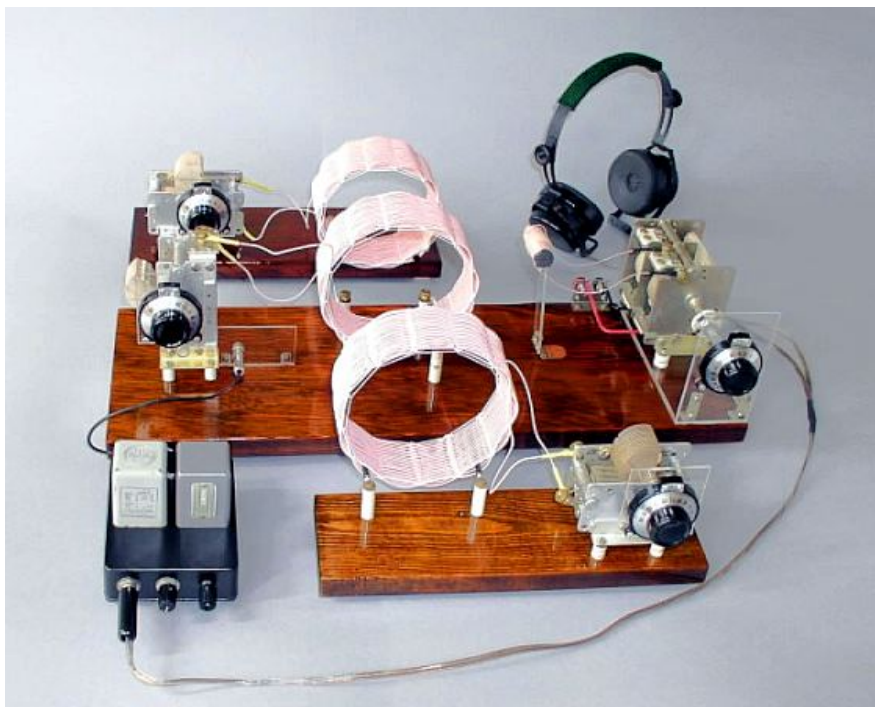
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2008 Contest Entrants

Page 1

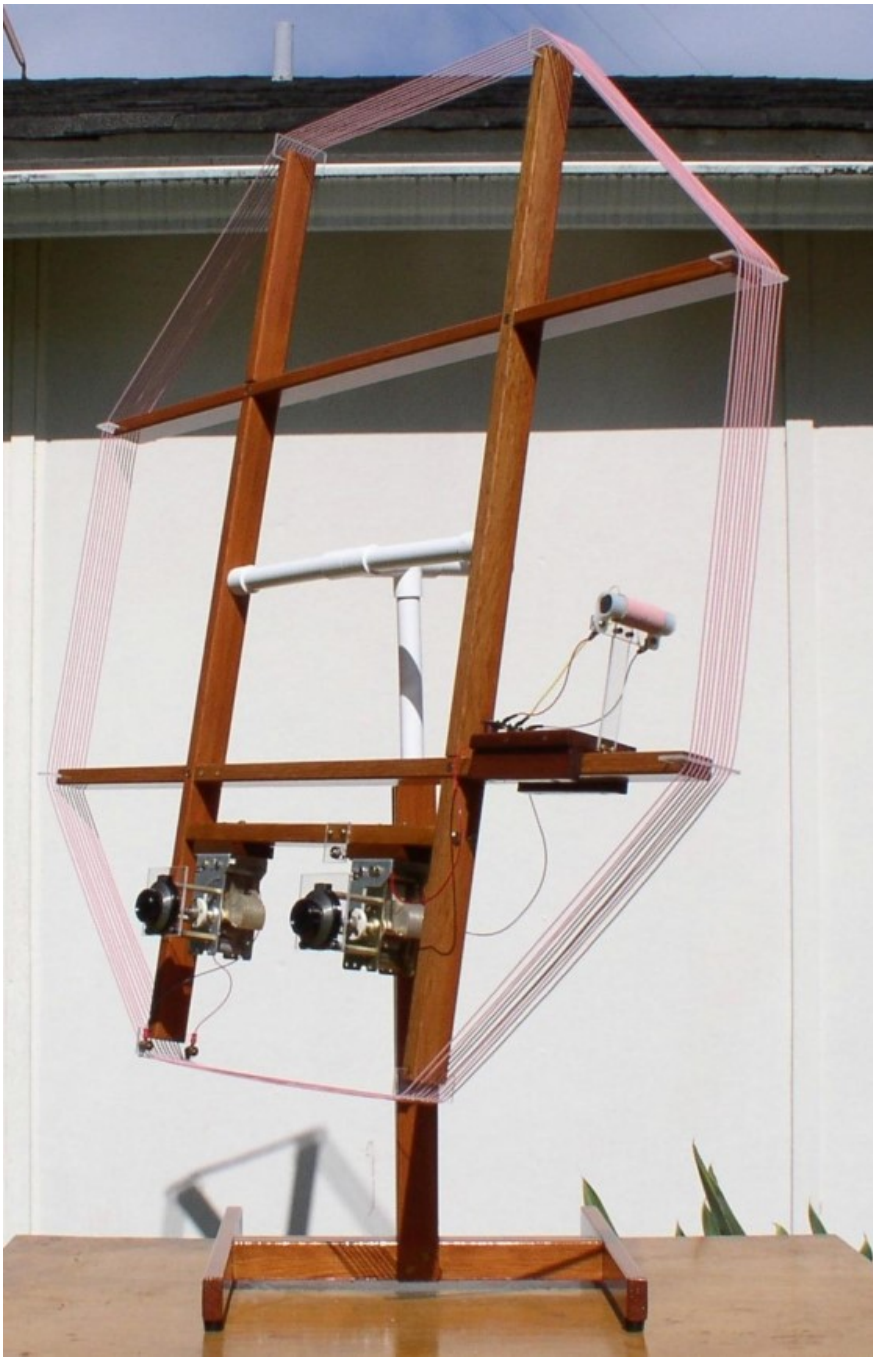
Mike Tuggle, Lyonodyne-17, Open Class Entry

"So, the solenoid is king, the spider needs a make-over and the basketweave is done." - from a post on Rap-'n-Tap -
Right.



Mike Tuggle, Loop Class Entry

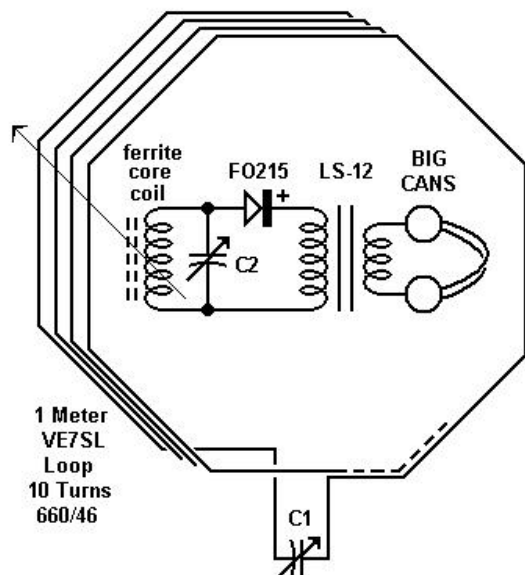
This double-tuned set is built onto a Steve McDonald (VE7SL)-design alt.-az. loop antenna.



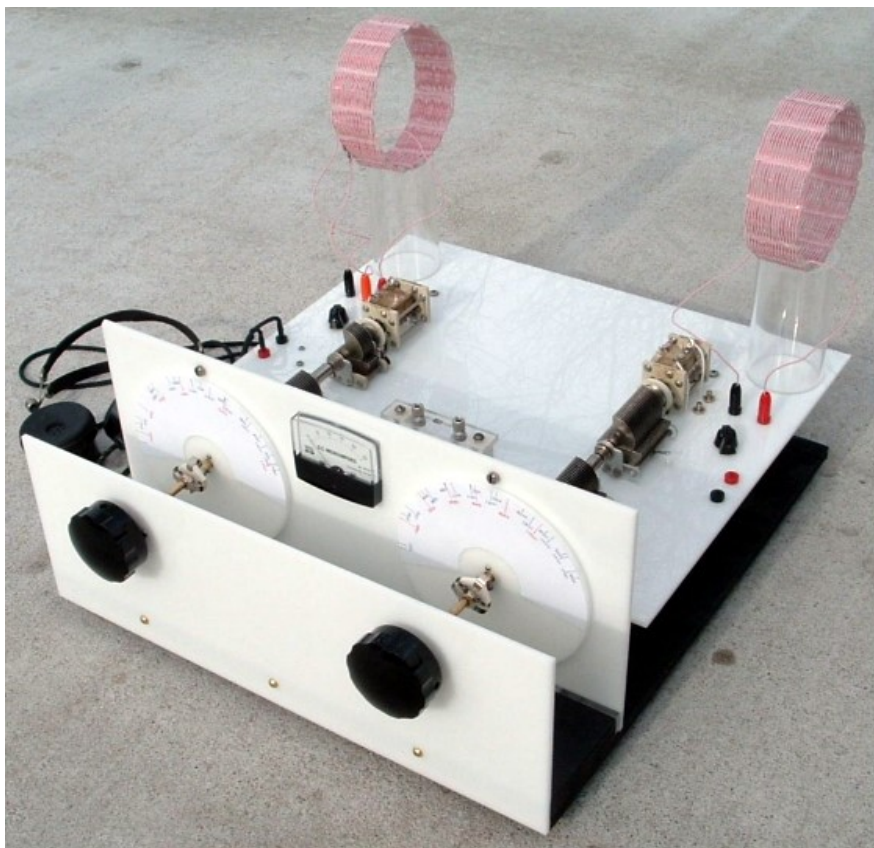
The ferrite coil slides on a loop strut to vary coupling. The idea was to see if mainland stations (2400 miles, and greater, away) could be heard here in Hawaii on a passive loop crystal set. The answer is, yes -- just barely. I really could have done with a bigger loop. Maybe next year.

Leading up to this circuit, I tried several designs using zero bias-voltage MOSFETs. A tapped ferrite coil or a pair of 5-inch diameter basket coils was used for gate and drain-source circuits. The basket coils were way over-coupled. None of the MOSFET circuits had promising sensitivity for possible mainland reception. Only by going to an ITT FO-215, kindly provided by Steve Bringham, could the big hop be made. This repeats my finding in last year's XSDX: The MOSFETs provide good selectivity but are not all that sensitive.

Twenty-five stations were heard, five of them DX on the mainland. Two of the DX stations were co-channel with strong local stations. I suspect the DX stations had exalted carrier help from the locals. This may be a potentially exploitable property of loop antennas: their characteristically sharp nulls can be directed to knock down strong local stations while, at the same time, leaving some carrier to exalt co-channel DX stations lying anywhere off the null direction. However, complete nulling the local station takes out everything.



Evan Haydon



I built a new crystal radio this year. I am now using 660/46 litz wire for my coils. One pair of coils for 530 kHz to 950 kHz. A second pair of coils for 950 kHz to 1700 kHz. They are basket weave with a five inch diameter. I wound solenoid coils of many diameters, inductances, and wire spacings with the 660/46 litz. None of them approached the measured Q of my five inch basket wound coils. My calibrated dials are six inches in diameter with two 6:1 verniers in series driving each dial. A third scale on each dial covers 1500 kHz to 1700 kHz. A pair of dual 8-60 pf silver plated porcelain insulated variable capacitors are switched in for 1500 kHz to 1700 kHz. Silver plated trimmer capacitors calibrate them to cover the dial. Overall selectivity and sensitivity are to the point that I really can't complain.

This year's contest was fun because the band was in flux all week. The first day had average to good conditions. The next three days were very poor with spotty receptions. The next two days had cold fronts pass through and stir things up. There were some unusual openings to the

southwest. The last days were lively during the gray line times with some new stations for my all time heard list. That list is now 469 stations.

Here is a table of my activities during the 2008 contest.

DATE	#HRS	#STATIONS
1-18	13	168
1-19	13	35
1-20	10.5	18
1-21	7.5	9
1-22	7	15
1-23	9	20
1-24	7	9
1-25	5	8
1-26	6	16
1-27	9.5	3

Total of 87.5 hours and 302 stations. 291 stations identified. 11 stations not identified.

Total points: 556,834

Just in case you haven't guessed by now, I only eat, sleep, and work the crystal radio contest for 10 days in January.



Dan McGillis



The set-up is a standard double-tuned arrangement with hobbydyne coupling. I tried to learn from and use the info that folks have so generously posted on R'nT and Dave's forums. Wish I could "give back" as much as I've received.

Antenna: 200' inverted "V", apex ~ 40'. I "sling-shotted" a wire over the highest tree near the house.

Ground is a 4' pipe into damp soil + a wire into a pond.

The set is Double Tuned: Ferrite inductors 10" above table top on empty HDPE containers. Getting the coils up away from the table made a BIG difference.

Detector Coil: Vintage ferrite bars, 9x2, 1/8" sep, 35t cw 330/46, 120 μ H. "Battradio" ferrite bars, 2 stacks of 9 (7 high+1 each side) Wrapped with packing foam. This is kind of a 1.25"x1.25", "squarish" coil. I used the recent posted Q info with the wire I had available.

Dual gang 10-410pf cap, series-or-parallel (ceramic DPDT switched). The switch in the tank circuit didn't seem to hurt selectivity. Two tuning ranges gave good mechanical bandspread (<25 khz/div @ max f) via Jackson Bros. ceramic insulated cap, + 48:1 vernier, 0-100 dials. The Tuning is VERY sharp - really need the verniers (8:1 dial x 6:1 planetary).

Tuggle tuned ATU: 0.5"x4" Amidon 61 rod, 50t cw 165/46, 203 μ H (~best for this antenna). 4" Amidon rods give better Q than 7.5" rods. Separate 365 pf Jackson Bros. caps + verniers. I needed a 48:1 vernier on parallel cap - tuning is sharp.

Hobbydyne: ~ 17pf (ceramic air variable) + 27 mH; choke (Dave Schmarders'). Helped at high end but probably don't need it with these ferrite bars.

Diode: FO-215 diode, rd~258k. (Picked the one with largest rd.). I could switch-in schottky's etc, but this was best overall match.

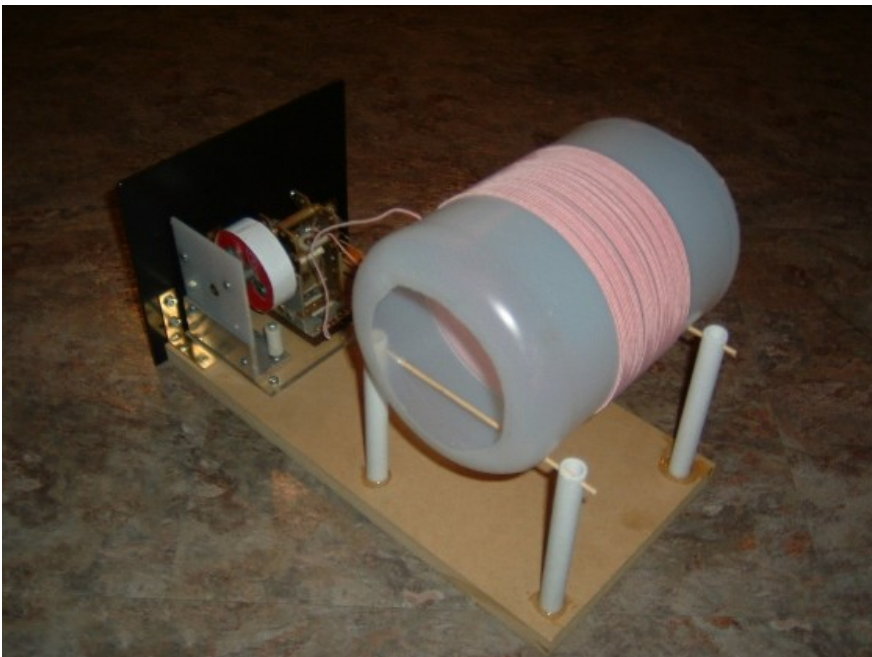
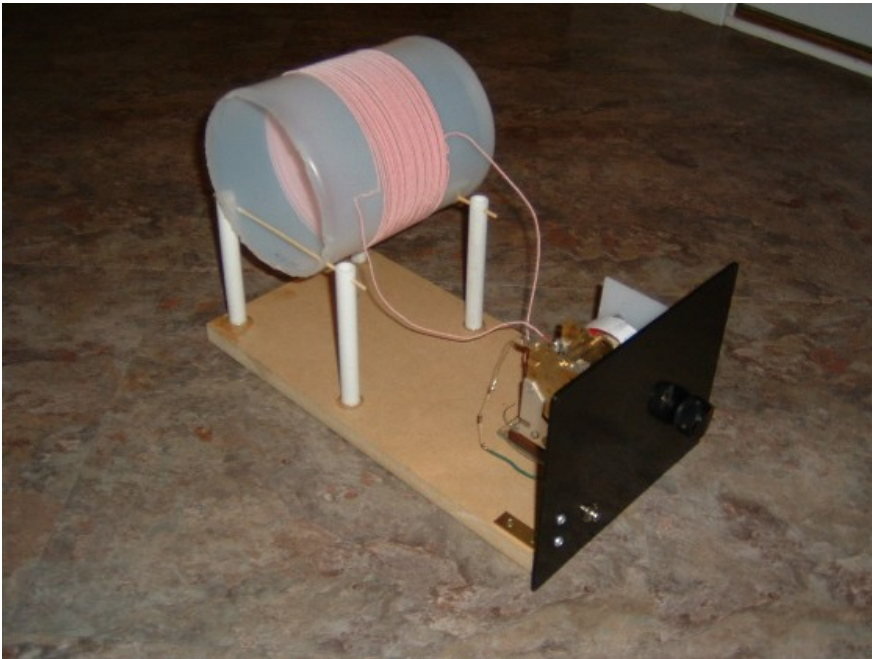
Audio: Dave's 200kUberformer + 500k Benny, shunted by 1 μ F. Two US1-UA1611-1 SP elements in series. (200k:2.5k).

Calibration: Curve-fitted table of dial settings for every 10 khz of AM band. This is VERY useful for quickly pouncing on DX that pops up then fades.

Op-Aid: Master log of 300+ stations heard over the last 2 years. It really helps having frequencies paired to: ID's, formats, ZIP's, area codes, major roads, distance, grey-line, etc.

Spotter radio: YAESU FT-757GX.

Jack Bryant



I wanted to try something new this contest. My old friend, Lem Morrison, has had a lot of success with air core coils, so I thought I would focus on a similar set for 2008. I had conversations or e-mail exchanges with several friends on a set recommendations. This included Lem, Gil Stacy, Mike Tuggle, Dave Schmarder, and Steve Bringhurst. The set would use 660/46 Litz on some kind of form. Steve's recommendation of HDPE vinegar jugs with a six inch diameter was the final choice of coil form. I used bamboo skewers through the ends of the jugs as part of the supports system. These skewers went into vertical posts of CPVC pipe; The pipes were epoxied into the fiberboard bases. The arrangement is what I call "goal post support". I set the jugs up several inches from the fiberboard to help minimize losses.

The radio has five basic building blocks: the trap, antenna tuning, detector, audio matching, and headphones. The trap was the easiest part since I used a toroid unit I had built a few years ago. It uses an FT114A-61 toroid with a five turn link opposite the primary winding. The ceramic insulated variable cap is tuned with a 5:1 ratio velvet vernier from a WW2 BC-375 tuning unit.

The antenna module uses a variable with a built-in 2:1 vernier and is wired in series with the antenna. The antenna connects to the frame, and the stator connects to the top of the parallel tank circuit. This tank circuit consists of a "goal post" mounted Litz jug-coil and a ceramic insulated variable cap with a vernier, also from a BC-375 tuning unit. These verniers have a 50:1 ratio and use a right angle drive approach. A drum made from a peanut butter jar top provides basis for the frequency readout.

In many other radios I used a dual section cap for the combination of antenna and tank circuit caps, but I wanted additional flexibility. The approach used here worked out great. The separate series antenna cap was especially useful during daytime DXing. It allowed me to use a greater value of antenna series cap for higher volume on weak daytime stations as well as reduced series capacitance when needed for selectivity. The base of the unit is fiber board with a front panel made from a black plastic clipboard.

Next is the detector module with the goal post mounted Litz jug-coil, an FO-215 diode, and a Fair Radio "holy grail" variable cap. This unit also uses the same type base and front panel as in the antenna unit. I selected to use neither taps nor a contra-wound approach on the two coils, just continuous wound coils. I did add complexity by adding an additional eight turn winding between the Litz rope for biasing a zero-bias MOSFET. This was switched in and out via a panel mounted double pole ceramic switch. I had trouble with the MOSFET and switching arrangement and finally bypassed it, using only the diode detector.

A panel mounted phono plug allows connection to the remote audio matching unit. A length of video cable joined the detector and audio units. I built a version of Mike Tuggle's double transformer Stanley match, and it worked great. Mine was wired for only two impedance options. I used the high input setting almost exclusively. I also tried a Select-To-Match and single transformer Stanley matching units for use with the in-the-ear units, but the double transformer Stanley Match seemed to work as well or better than those.

The headphones required more attention than any other part of the radio. The many hours of listening in previous contests with heavy sound powered elements had taken its toll on the nerves around my ears. In the previous contests the irritation became quite severe, such that even one of my eyeballs throbbed with pain! I had mentioned this one Rap N Tap, and I received quite a number of suggestions.

Garry Nichols and John Davidson provided me with an in-the-ear Shure unit to test. Steve Bringhurst provided a set of British phones with a wire behind the neck for partial support and a cloth band over the head. I also tried some Koss and Realistic in-the-ear phones. I used both the Shure and Koss phones in the beginning of the contest. They were comfortable and worked fine, but were not nearly as sensitive as my old phones. Steve's phones were sensitive but were not comfortable. I finally settled on a helicopter headset with salvaged SP elements. The headset fit completely over and around the ears. While these were not as sensitive as my old set of phones, they were a reasonable compromise.

I have used a Realistic DX-398 for several previous contests, and I used it for this one, too. A neat trick is to bring the antenna matching unit near the DX-398. Sometimes the DX-398 needed this extra boost to hear the signal the crystal set was receiving!

I like to use computer logging as I go along, so I used my normal home PC for that. A four foot table from Lowe's and a comfortable chair rounded out the listening post.

[Continued on Page 2.](#)



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- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)
- [IAD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2008 Contest Entrants

Page 2

Brent Seres



Set: Double tuned torroid, with Tuggle front end, using FO215 and Schottky diodes. 100k to 1 k Hammond matching transformer, and sound powered phones. Coupling is accomplished with a third torroid, primary has 3 turns inseries with ground lead, secondary has 3 turns in series with main detector coil.



Dave Schmarder



For more info, visit Dave's website at: [Dave Schmarder's 2008 Crystal Set Contest Entry](http://www.daveschmarder.com). This is his [#70 Crystal Set](#).

Jack Hennon

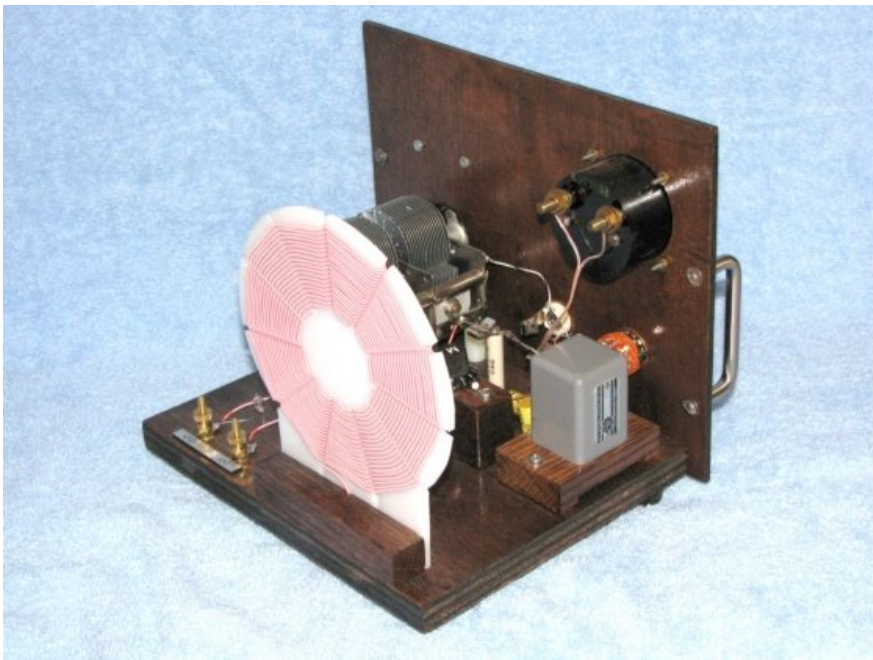
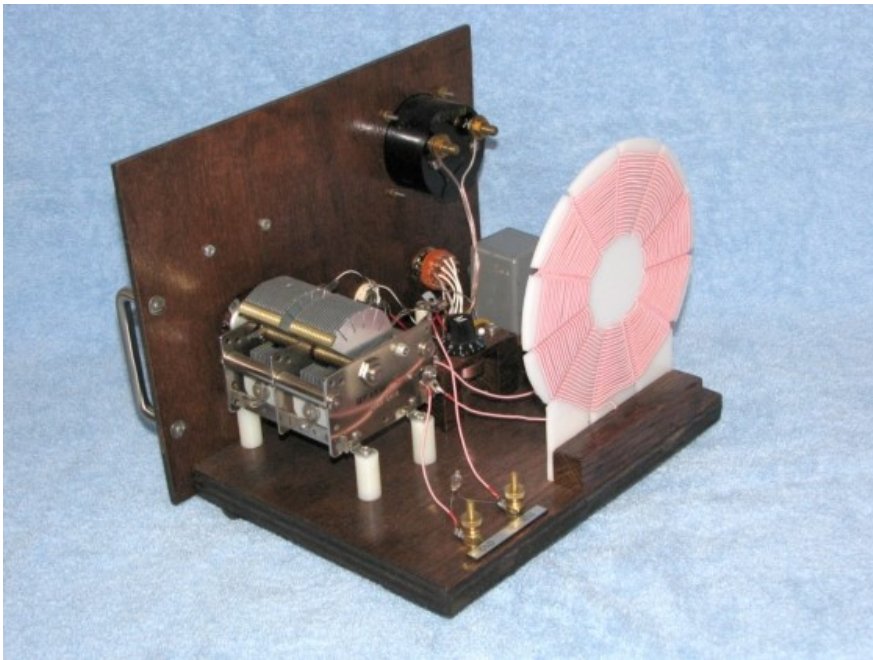


The set uses a Tuggle Tuner, a Schottky diode detector with three diodes in parallel, and a UTC A27 matching transformer.

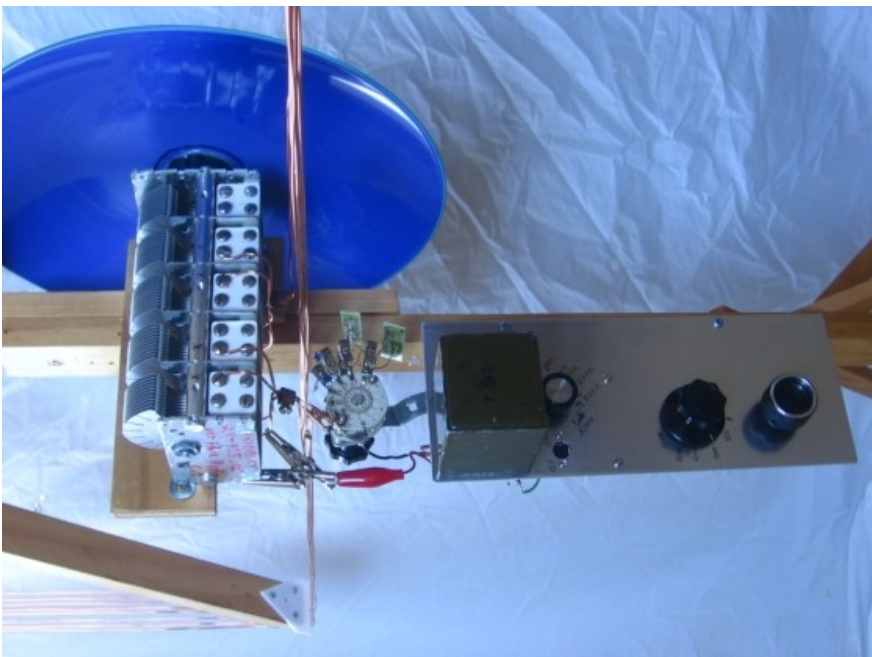
My antenna was a 135 dipole fed in the center with 45 feet of 450 ohm open wire line. I connected the feed line wires together at the set and worked the antenna as a T against ground.

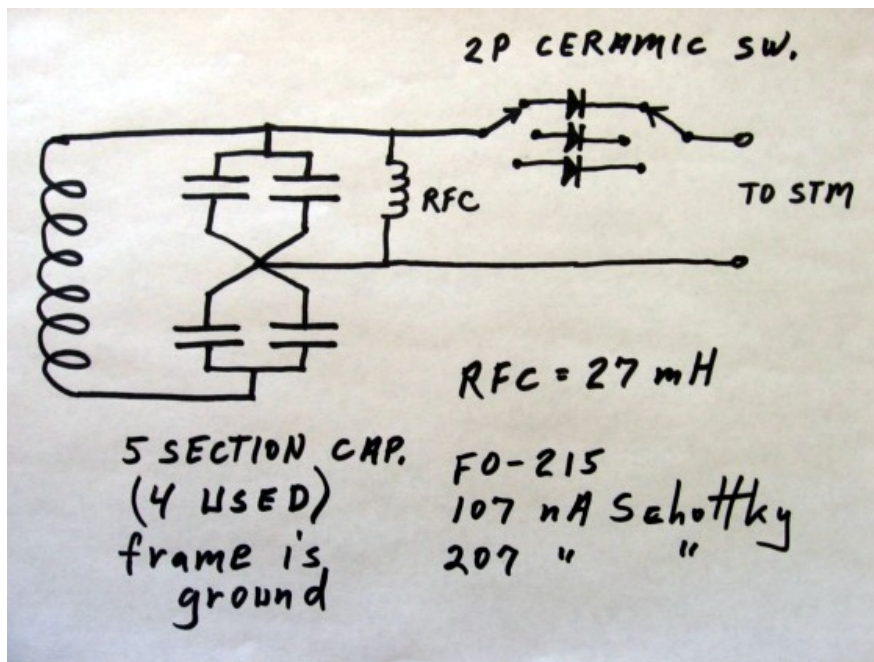
Again the contest was fun. I did better than last year, copying 100 stations. Conditions may have been better or it could be due to my new set and more sensitive headphones.



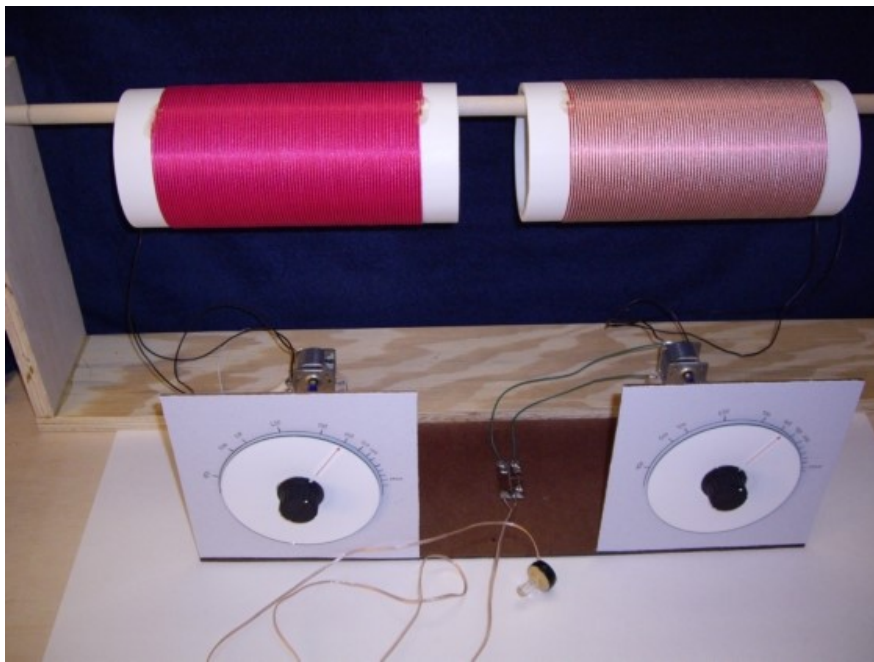


Garry Nichols





James Kretzschmar

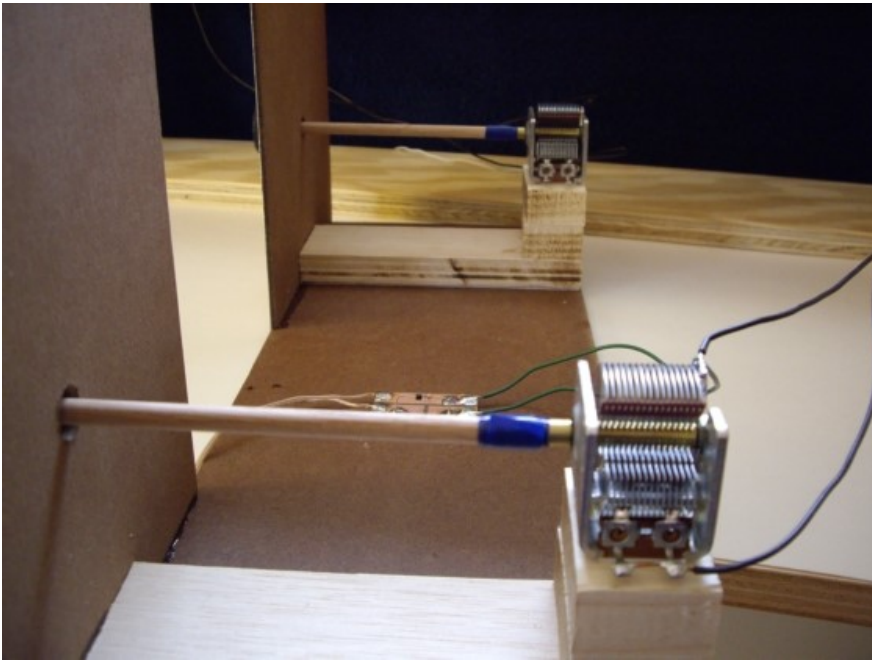
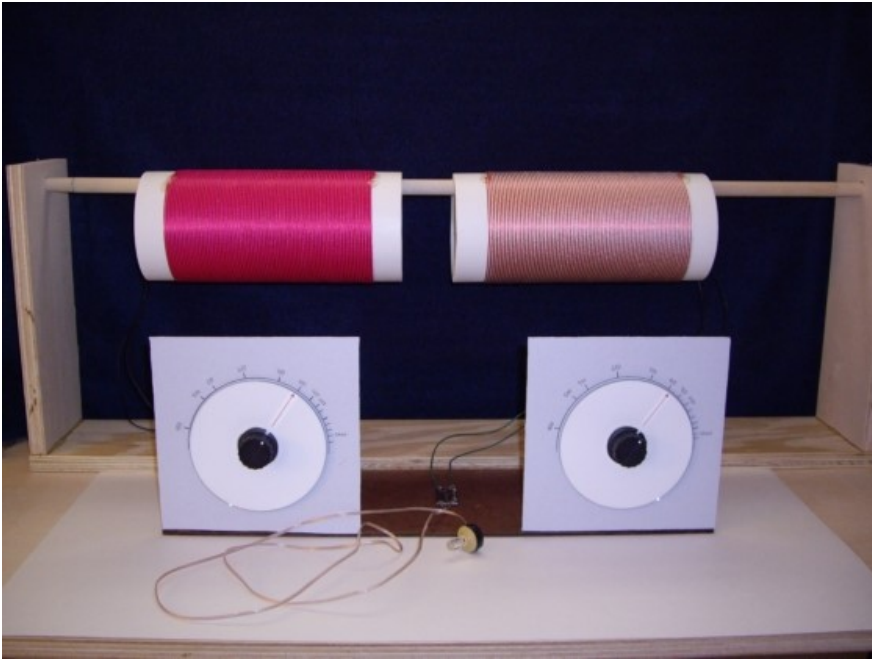


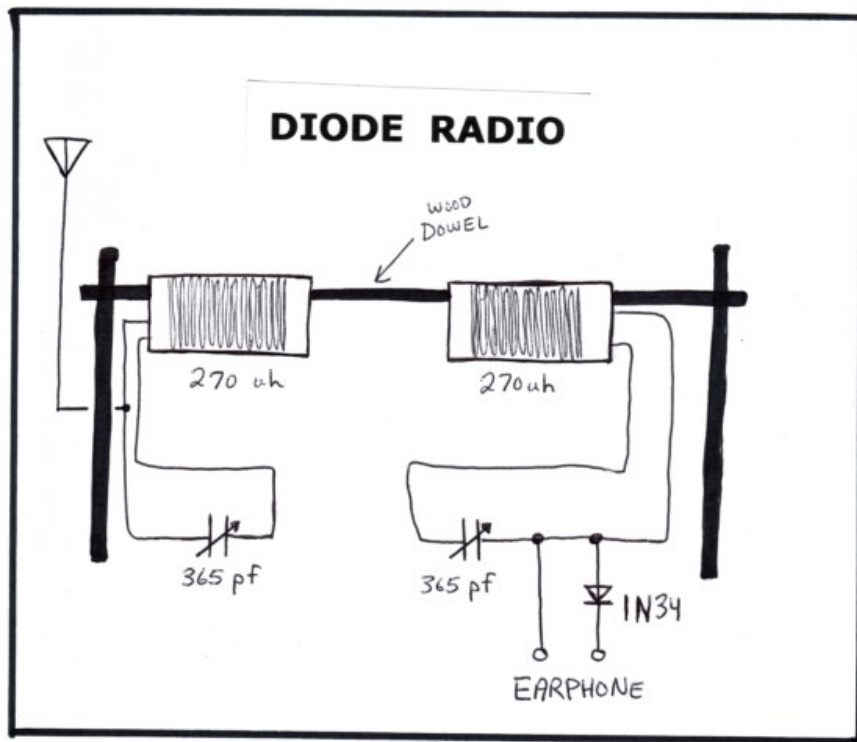
This radio is big improvement over the radio that I entered in the 2001 Crystal Radio building contest. I started tinkering in early January 2008 and finally decided on a design on 17 January 2008, and built the radio that afternoon ... ready to use the next day.

My coils are wound on 4.5" PVC pipe with 80 turns #18 wire space wound the width of the wire with nylon masonry cord. The coils actually have too much inductance, however I did not have time to change them. The variable capacitors have 1/4" dowel wooden extensions to avoid the effect of hand capacitance. To provide smooth operation and stability a 1/4" washer is glued to the front panel.

My antenna is about 200 feet of wire strung through the trees in the backyard about 20 feet up. In operation, the right side is tuned to where you want to be, then the left side is tuned for the strongest signal, the coils are moved in/out as needed for signal strength and selectivity. I have had real good results with this design.

At my location in Winston Salem, NC we have a real strong station at 830 KHz and I can routinely hear 840 KHz WHAS in Louisville, KY in the clear. Two small stations were heard during the 2008 contest: (1) WMAC 940 KHz in Macon, GA (2) CKNX 920 KHz in Wingham, Canada. A total of 35 stations were copied. A simple piezo earphone was used. I plan to tinker with this design to optimize reception.





[Continued on page 3.](#)



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- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)
- [IAD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)
- [2006 Page 1](#)
- [2006 Page 2](#)
- [2006 Page 3](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

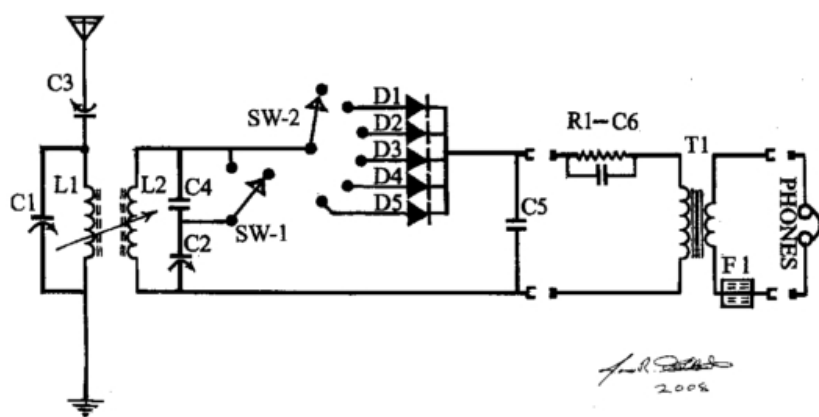
Crystal Radios Of The 2008 Contest Entrants

Page 3

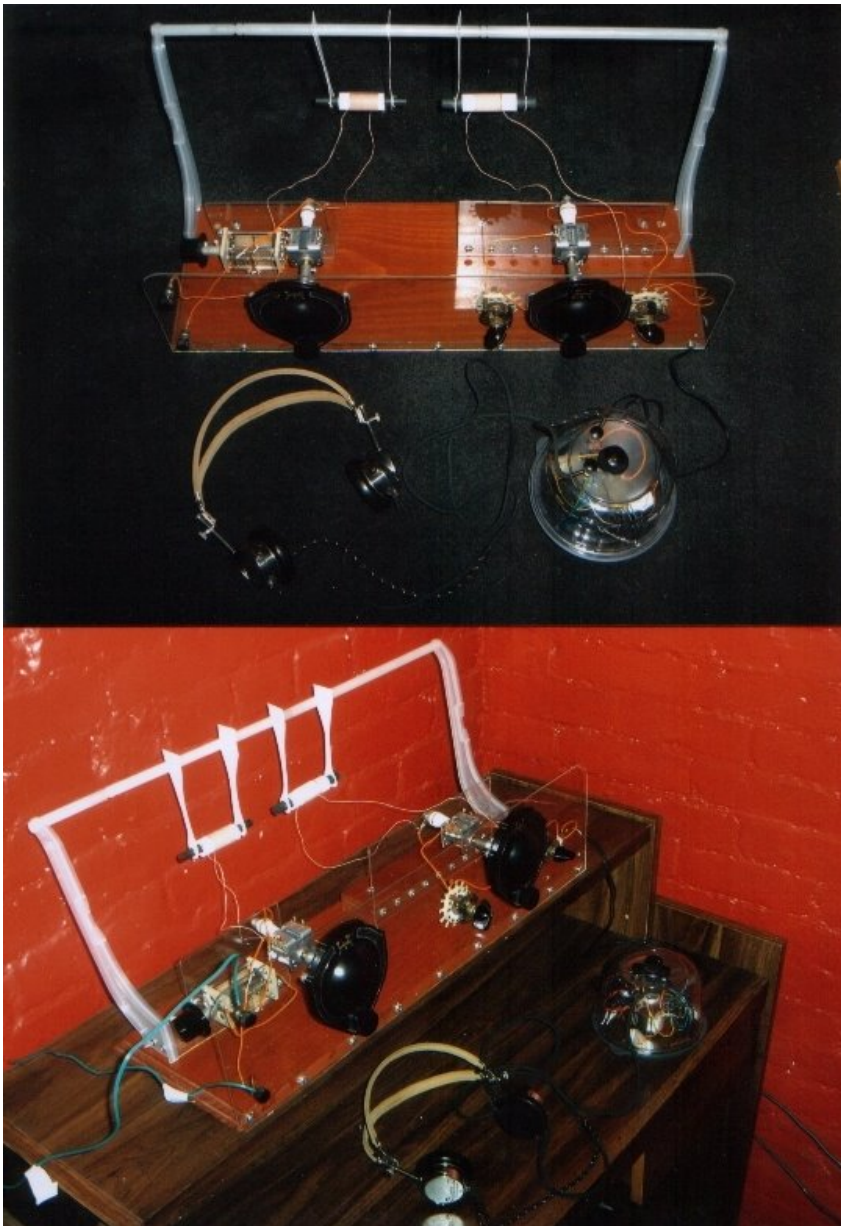
James Gallant

[View Page 1, JPG File](#)

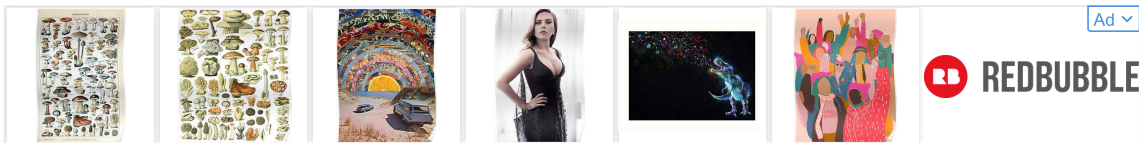
2008 DX CONTEST SET – JIM GALLANT



[View Page 2, JPG File](#)



[To the main page.](#)



Select Menu

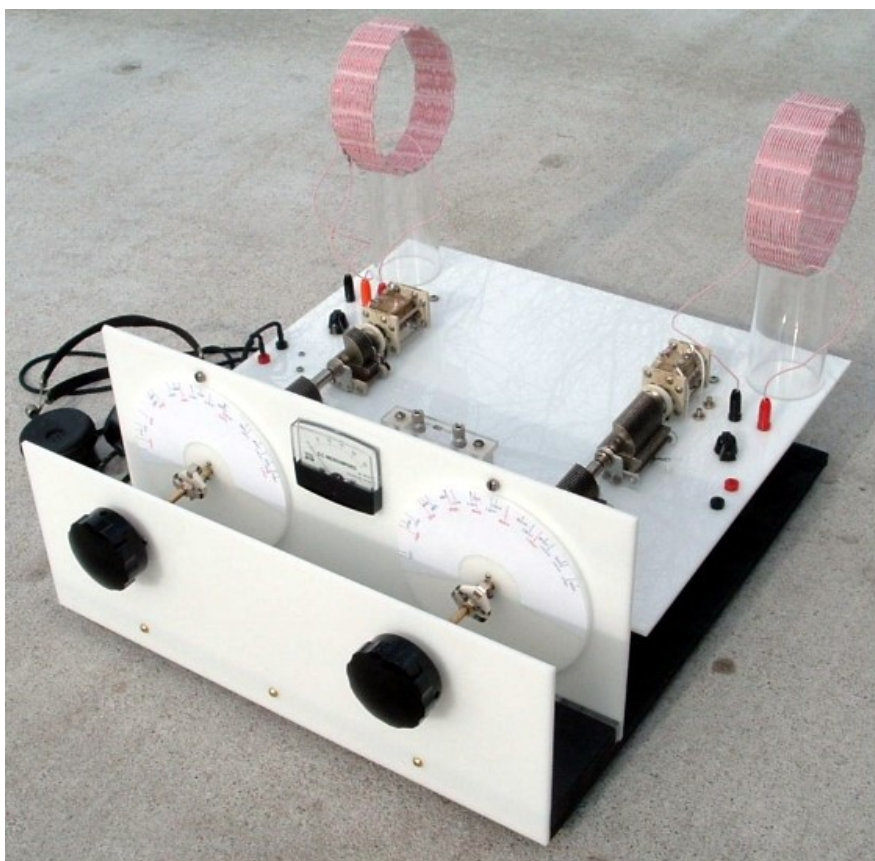
- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)
- [IAD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)

- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2008 Contest Entrants

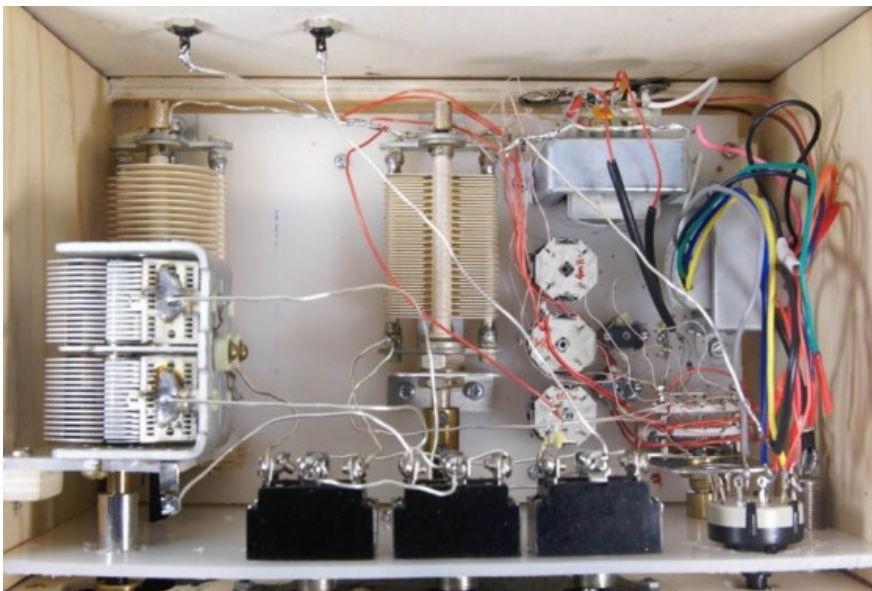
Page 4

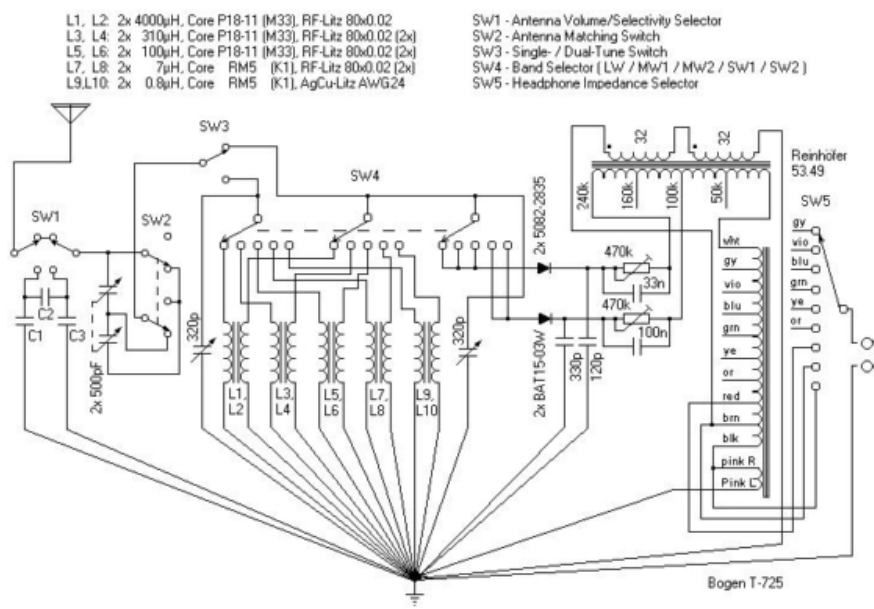
Evan Haydon



[Click here to see Evan's set that he also used in the January 2008 Crystal Set DX Contest.](#)

Ralf 'Brösel' Siemienieć





My crystal radio tunes the mediumwave (broadcast) band as well as the shortwave band, both are split into two subbands, and the longwave band. To keep the receiver small, I was using closed ferrite cores from Epcos, P18-11-M33 for the MW & LW bands and RM5-K1 for the SW bands. The coils are all done using litz wires 80 x 0.02 mm (two wires in parallel for MW and SW1) and two parallel litz wires of silver-plated copper strands for SW2. Actually, this is the same wire as I used for the wiring, the insulation of the silver-plated litz wire is made of Teflon, which should not cause too much losses (as I hope). The antenna and detector coils are each wound on a separate core which were later stacked together.

The radio has two tuned circuits and a variable antenna coupling and can be switched between single- and double-tuned mode. Additionally, there is an attenuator in case of need, the variable antenna coupling capacitor is a two-ganged type and can be switched in series or parallel. The antenna and detector tuning caps are both silver-plated devices. Rectification is done using two paralleled 5082-2835 for the BC band and again two paralleled BAT15-03W for the SW band. The matching section consists of two transformers - a 53.49 by Reinhold Röhrentechnik in Germany (input impedance 240k) switched together with a Bogen T-725. I managed to get a pair of Baldwin Type C headphones which are much more sensitive than all of my modern but more comfortable types.

All is mounted at a polypropylene sheet for proper insulation. The most distant station received so far was 1419 km away in Tunisia. Could probably be more if I had another antenna than the metal made balustrade of my balcony - I live in a multi-party house, thus there is not much chance for long antenna wires.

Lem Morrison



Lem used an updated version of this set that was used in the last several Crystal Set DX and Sprint Contests.

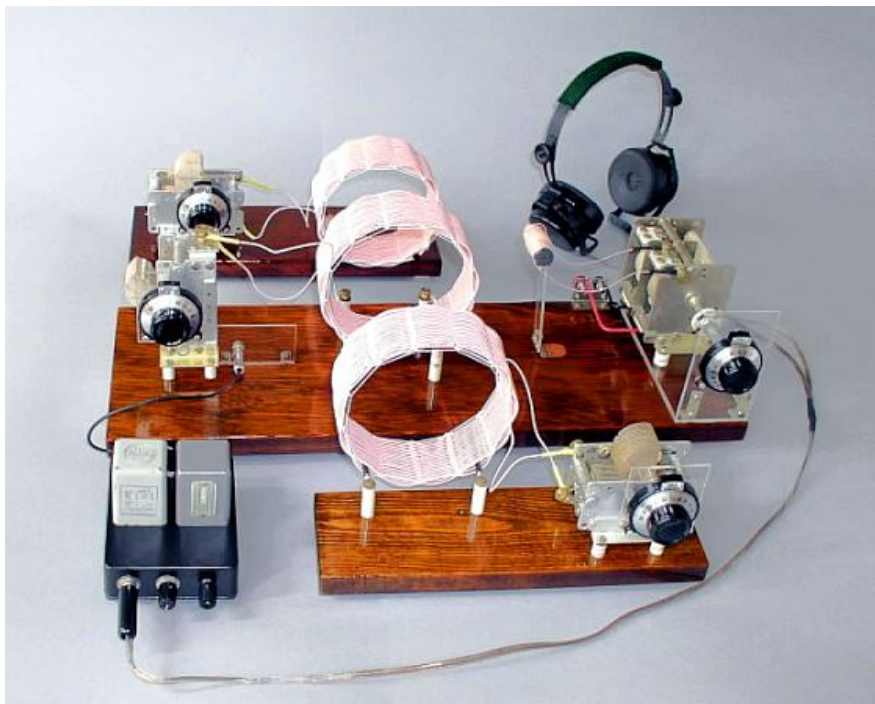
Garry Nichols

Same loop as in the photos for last winter's contest. However, I was not using the STM, only the T3/AM20 100:100k transformer and the single 107 nA Schottky. Also, I was not attaching the ground to the variable's frame and using a RFC for diode DC continuity through the variable.

The ground of the detector/audio went to the center of the loop winding > instead. I found that there was much less interference from a local FM station this way.

[Click here to see more about this set that Garry also used in the January 2008 Crystal Set DX Contest.](#)

Mike Tuggle



The infamous Lyonodyne-17, double-tuned, 12101 3RT detector, two wave traps, RCA Big Cans.

Dan McGillis



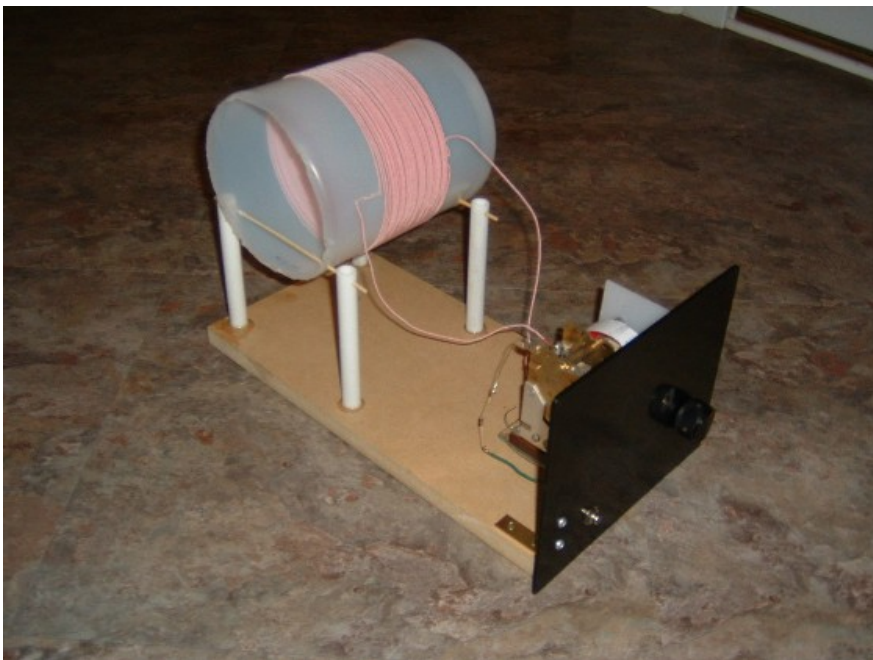
[For more info, click here to see Dan's posting on Dave Schmarder's RadioBoard.](#)

Dave Schmarder



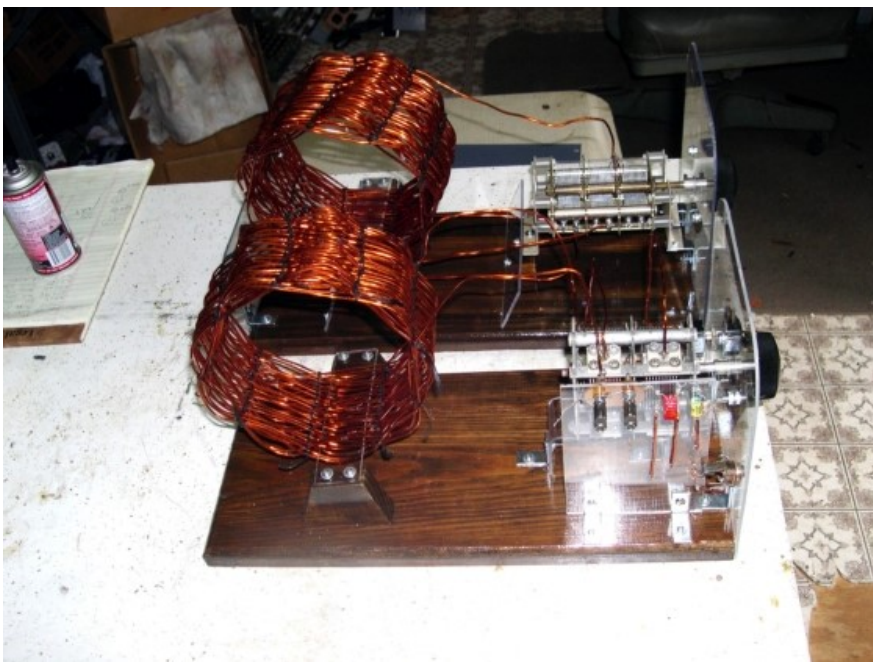
[Click here to see more on Dave's Loop Set at his fine website.](#)

Jack Bryant

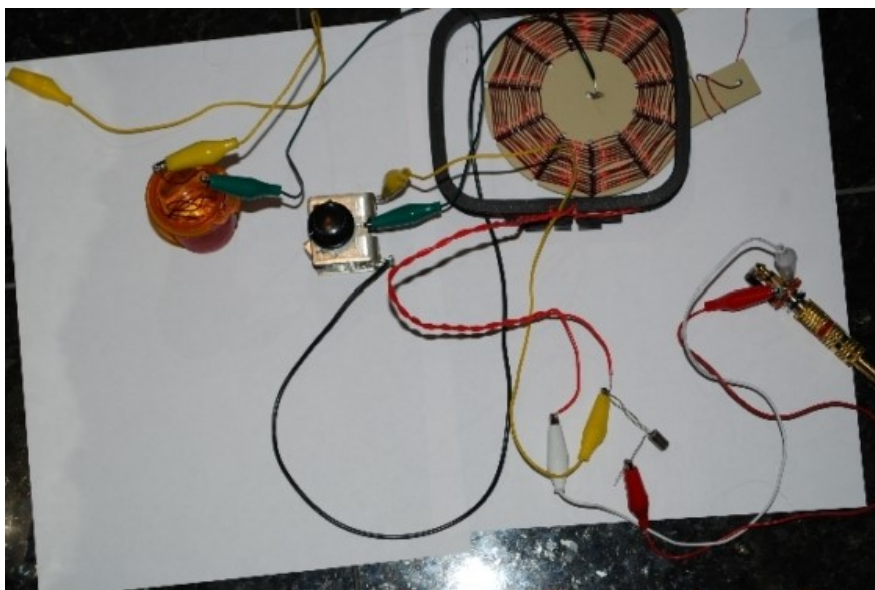


[Click here to see Jack's set that he also used in the January 2008 Crystal Set DX Contest.](#)

Curtis Gamble



Denver Cohen



Back to the [Index](#)



Select Menu

- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [IAD Contests](#)
- [IAD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)
- [2006 Page 1](#)
- [2006 Page 2](#)
- [2006 Page 3](#)
- [2007 Page 1](#)
- [2007 Page 2](#)
- [2008 Page 1](#)
- [2008 Page 2](#)
- [2008 Page 3](#)
- [2008 Page 4](#)
- [2009 Page 1](#)

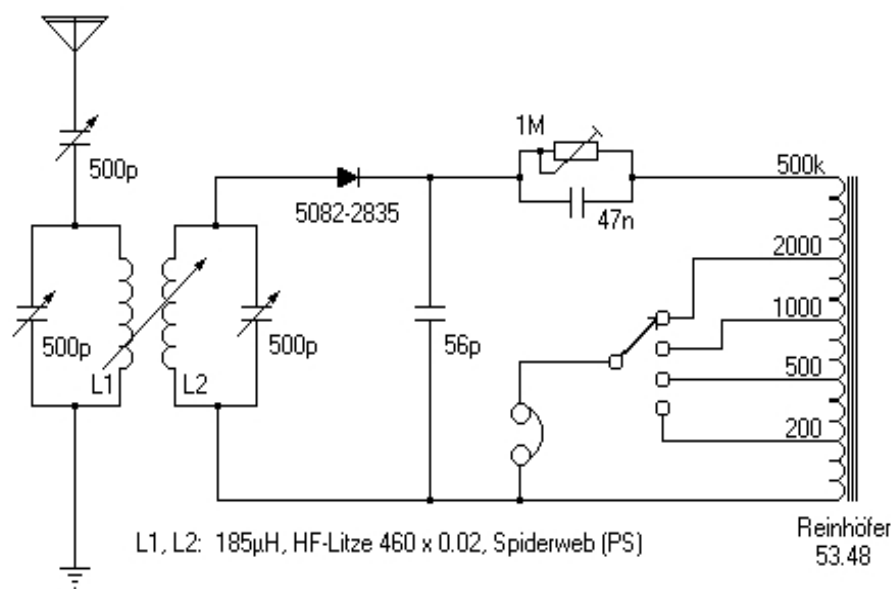
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

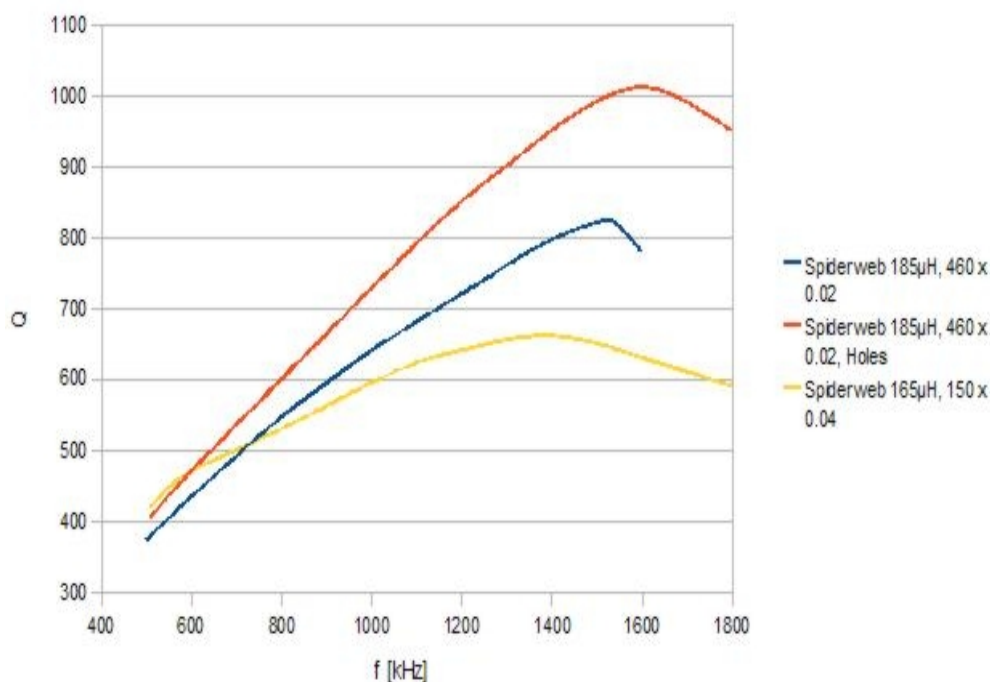
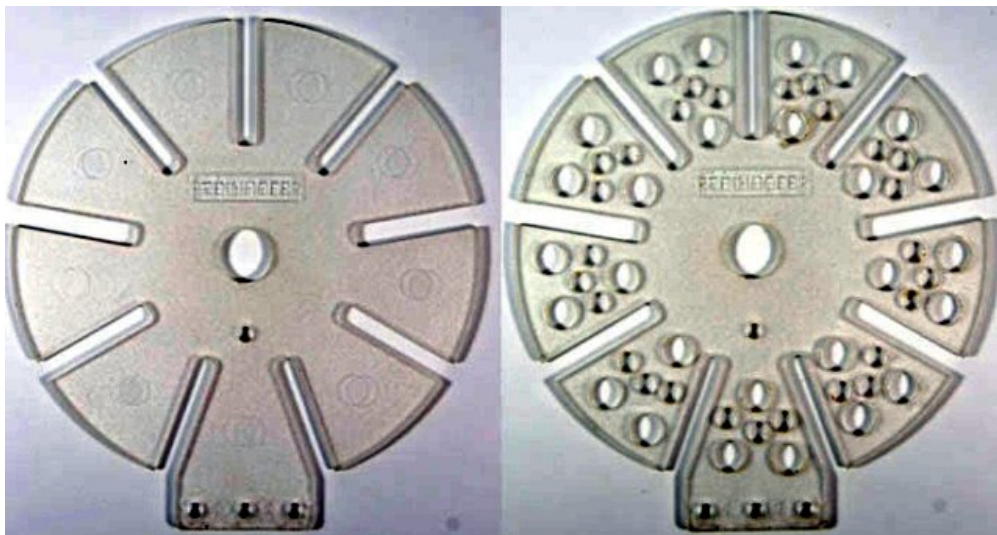
Crystal Radios Of The 2009 Contest Entrants

Page 1

Ralf Siemieniec, Open Class, SW Class, and Below BCB Class Entries







In the (broadcast band/mw) contest, I used my latest receiver which was just finished right in time. The schematic features a double-tuned circuit with an additionally antenna matching cap and probably does not show surprises. The whole device was designed to gain highest Q values within my possibilities. I used polystyrene coilformers of the german manufacturer Reinhöfer which already offers the possibility to gain high Q values.

The coils have 185µH and were wound with 460 x 0.02mm litz wires. Measurements of such a coil show increasing Q with frequency up to 1550kHz and a maximum value of app. 830. A noteworthy improvement was reached by drilling six holes in each segment of the coilformer, now the Q increased across the frequency range of interest (in Europe, station in the mediumwave band cover a range from 531kHz to 1611kHz). Moreover, also a maximum Q of app. 1020 was found. Therefore I decided not to use contra-coils since I wanted to avoid the use of any (more or less lossy) switch in the RF section.

To preserve the high Q, I used TRW silver-plated air variables in the antenna and detector circuit. Coupling of the coils is made variable by a somewhat old-fashioned technique as used in old tube radios. Anyway, it is working very smoothly and reliable.

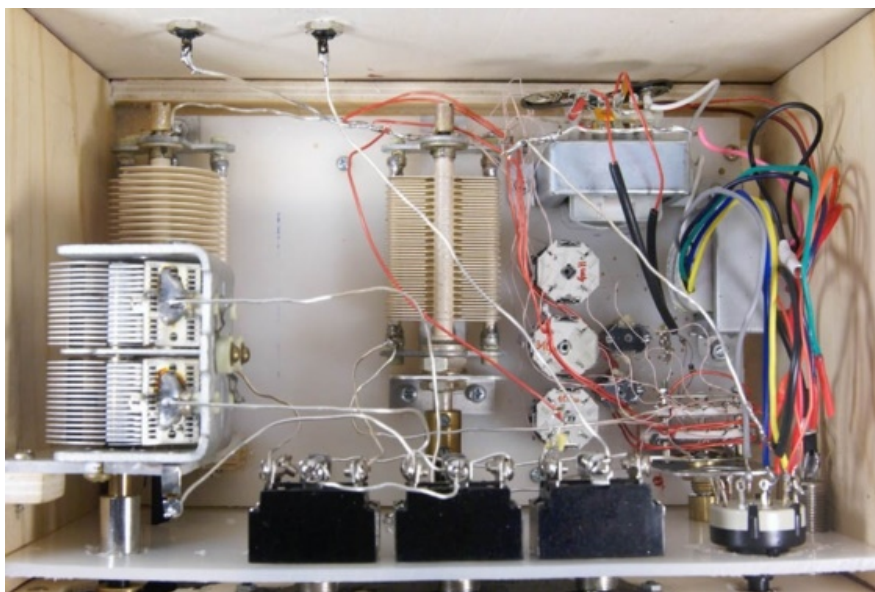
Housing is done by low-loss polypropylene sheets which keeps the Q up (refer the measurements of Dick Kleijer at <http://www.crystal-radio.eu>). In difference to most constructions presented so far, I completely enclosed the device. The main reason is to keep dust away from the caps - if you ever did Q measurements of high-quality aircaps with dust in between the plates, you will understand why. The dust probably kills more Q than the housing might do, providing the use of appropriate materials (thus, no wood, PVC, metal, acryl glas or most colored plastics).

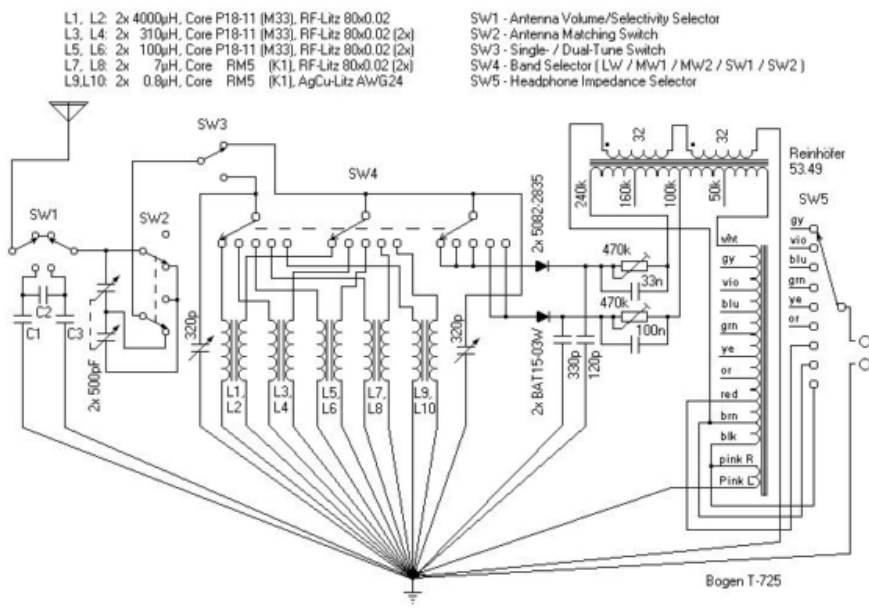
All variable caps are completed by 6:1 vernier dials made by UK Jackson Brothers. 5082-2835 schottky diodes are used as detector diodes and provide the best matching between detector circuit and audio transformer I was able to realize. The matching transformer with an input impedance of 500k was also manufactured by Reinhöfer. The radio is completed by a pair of balanced-armature headphones Baldwin Type C as well as the usual benny circuit.

The real backdraw of my receiver is the limited antenna. I live in a five-storied house which not much chances for long antenna wires. Thus my best option was a 10m wire between my balcony and the roof of the next garage. Compared to my other set which I used in the last sprint contest and still used for the longwave and shortwave band in this year, selectivity and also sensitivity was noteworthy improved. The 6:1 vernier dials are already a minimum requirement, 12:1 or more would be favourable.

In all, I was surprized about how many and how distant stations I was able to receive during the contest.

Shown below is the set used in this contest for SW and LW. It is the same set used in the 2008 Sprint Contest.





Dan McGillis, Open Class Entry

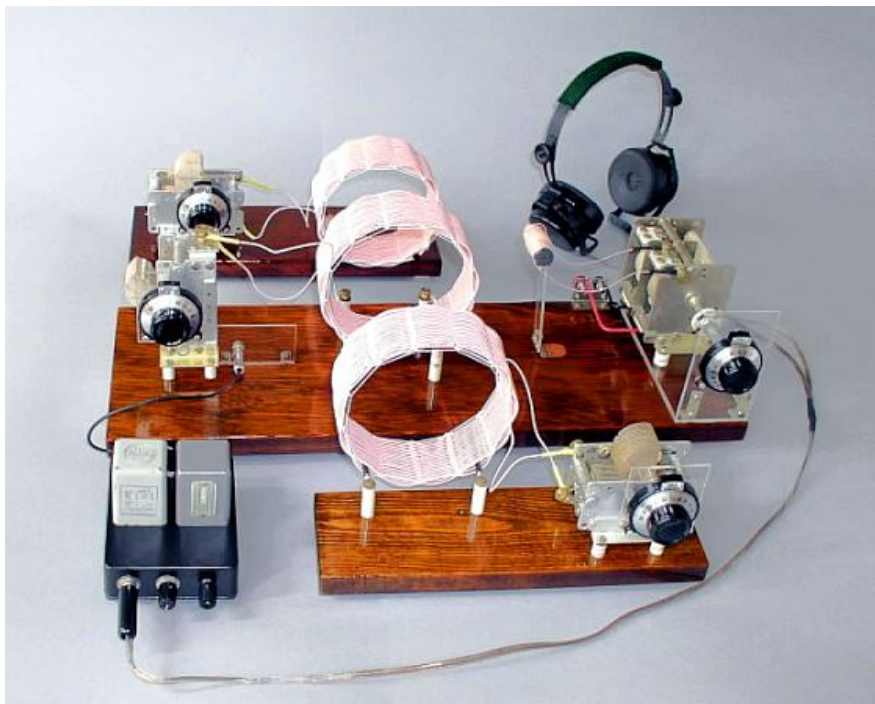


My entry this year is a simple loop-stick crystal set - something the grandkids can play with. It's been described at the [RadioBoard](#).

I used a little antenna tuner that's also been described before. Click [here](#) for the RadioBoard link for the tuner.

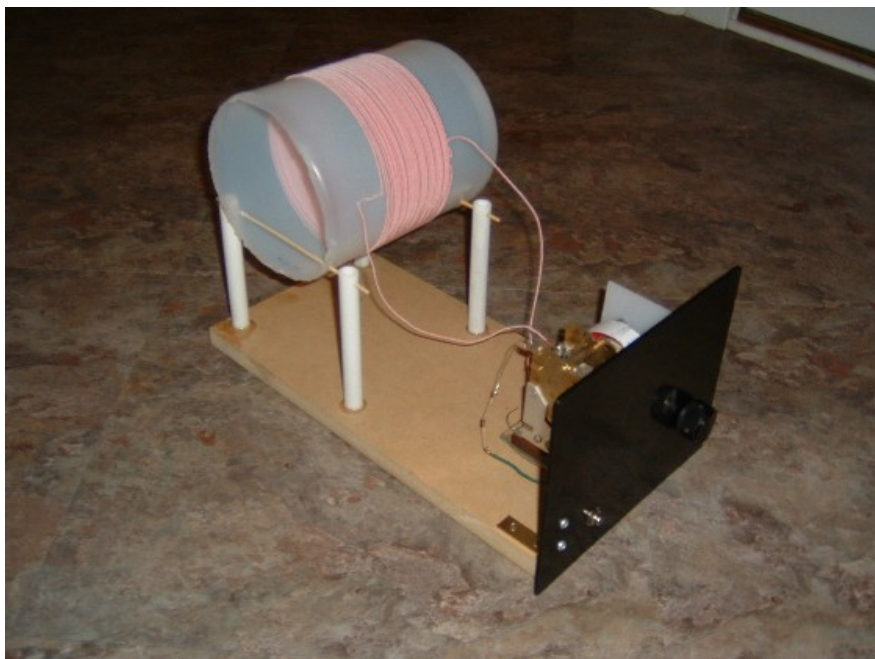
The set didn't do too bad for only a few days of listening. A big 200' antenna certainly helps :-). It makes a nice progressive set. I started out using Mike Peebles's cat's whisker detector stand. It's very smooth & works well. Substituting a FO-215 diode perked things up. Adding a Bogen+Benny for some audio matching made a big difference. Coupling-in a simple antenna tuner really brings-in the DX and kills the SW ghosts.

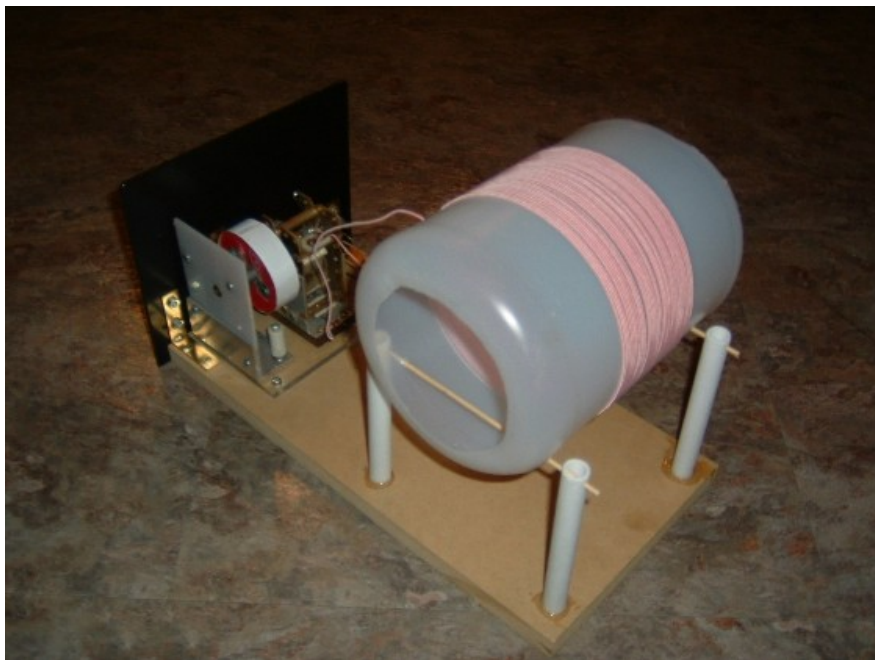
Mike Tuggle, Lyonodyne-17, Open Class Entry



This year's effort was something of a disaster. The night before the start, our annual Kona winds blew the antenna into the mango tree and ripped it to shreds. I spent opening day out in wind and rain, in true ham fashion, getting the antenna down and re-erecting a simple longwire in its place. Conditions throughout the contest were blah. I don't know whether the original 4-wire flat-top was really that much better, or if conditions were simply that blah.

Jack Bryant, Open Class, Two-Way Shortwave Class, and Below BCB Class Entries





I only worked the first 24 hours of the contest on the broadcast band. I had copied one navigational beacon at 529 kHz, and decided to build a simple set for LF. I copied four more stations for a total of five. The stations are: DIW, CLB, BH, YYW, and LYQ.

I worked a few contacts on 75m AM using the xtal set as a receiver. My transmitter VFO had bitten the dust, but I got a crystal for the transmitter on Saturday, and that worked fine.

I used essentially the same set for the broad cast band that I used in years past, with minor mods to the antenna tuner. I did use Schottky diodes for the first time. I used two in parallel during the day, but moved to just one at night due to the overload I experienced using the pair.

This year I used a different set of phones made from SP mic elements. The earphones were made of hard plastic, but the headset band placed the phones on the back part of my ears. I did not experience the ear pain of previous years, but I made sure to move my glasses far up on my head, or not use them at all to eliminate pinching the nerve beside my ear.

I have used a Realistic DX-398 for several previous contests, and I used it for this one, too. I used a PC for logging along with paper copy backup. I used a four foot table from Lowe's as my listening post.

[Continued on Page 2.](#)



Select Menu

- [Home](#)
- [About Us](#)
- [Contest Results](#)
- [1AD Contests](#)
- [1AD Entries](#)
- [Antenna Matching](#)
- [Antennas](#)
- [BHAM Radios](#)
- [Crystal Contests](#)
- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
- [Projects, Mods](#)
- [Favorite Links](#)

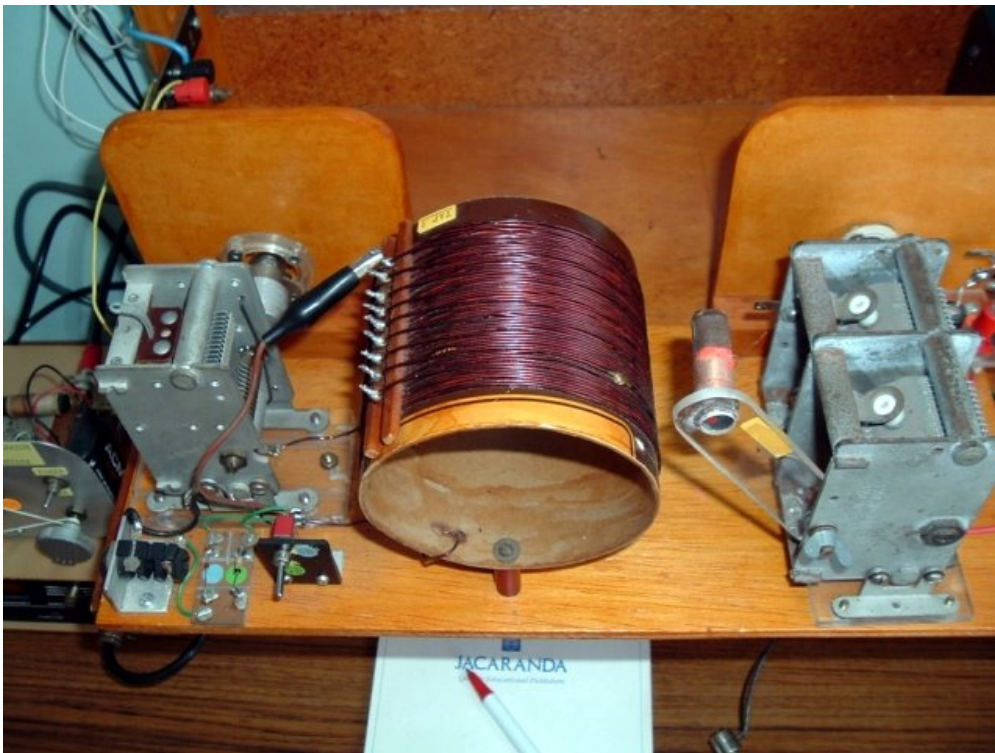
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2009 Contest Entrants

Page 2

Ron Everingham, Open Class Entry







This double tuned radio is really my first attempt for DX listening by virtue of using two vernier dials, variable coupling and audio matching.

L1 is wound on a piece of ferrite rod connected to a swinging arm to obtain variable coupling for L2. The S meter is a surplus 30uA movement which gives a good indication for setting the tuning capacitors to a particular frequency when a signal generator is loosely coupled to the aerial.

The aerial used is about 20 feet high and 80 feet long bent to fit into my small lot.

Dave Schmarder, Loop Class Entry



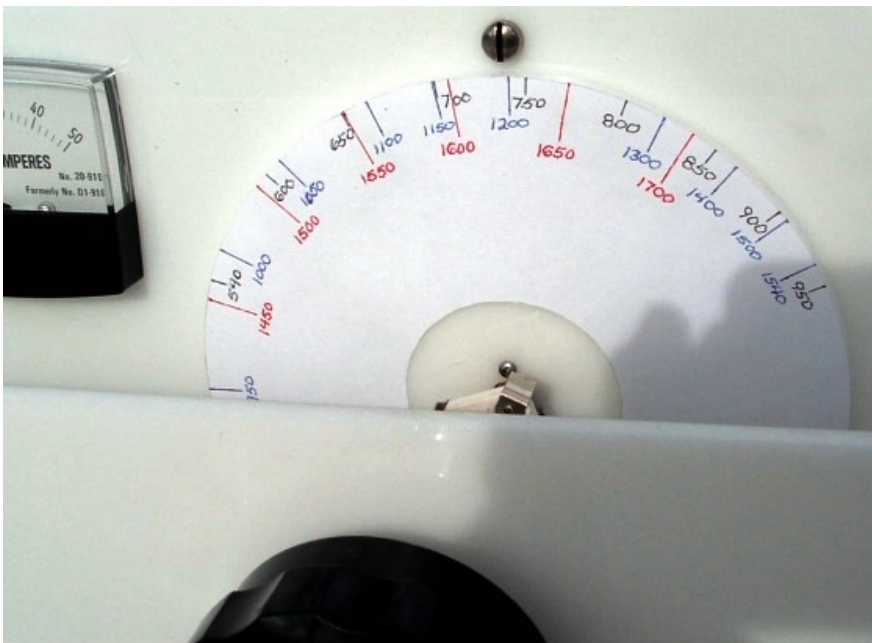
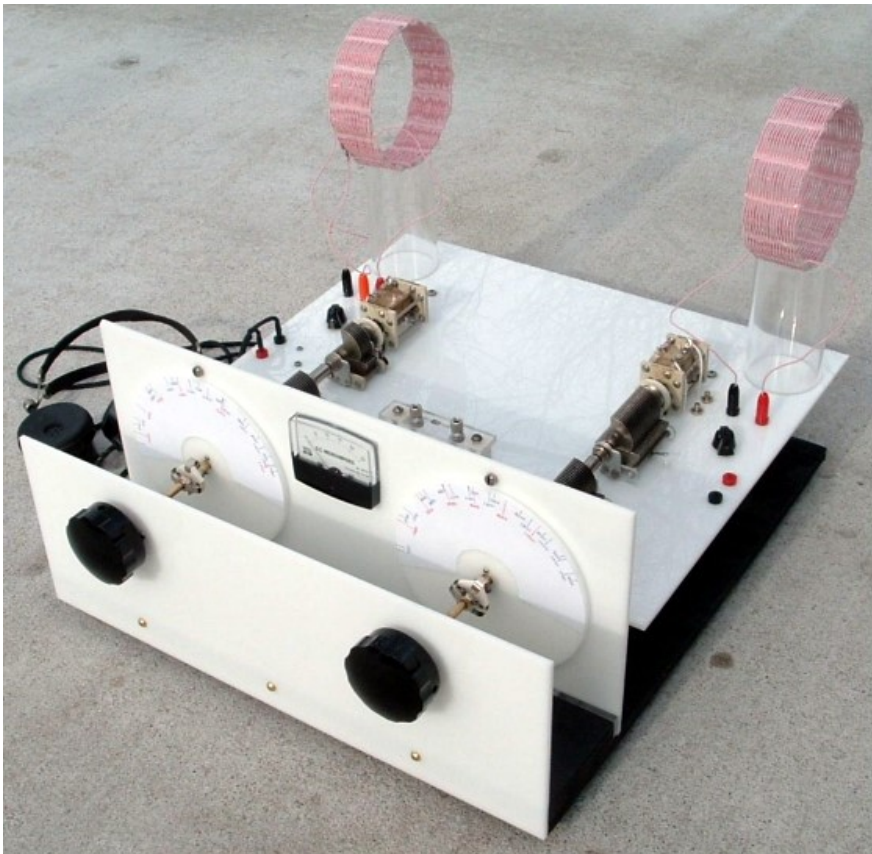
To see Dave's log and contest set description [click here](#). This will take you to his fine website. Here is his [loop antenna description](#).

Jack Hennon, Open Class Entry



Jack used the venerable Miller 565 with an external audio matching unit. Notice the very rare 10 ua meter in his audio unit!

Evan Haydon, Open Class Entry



I spent a lot of time preparing for the 2009 contest. I spent many hours most evenings for the last three months listening to the broadcast band. From both notes made then and from memory, I am very familiar with what stations appear at what time of the day at this location. I watch band conditions carefully and fairly accurately know which stations it is even possible to hear at any time on any frequency.

My crystal radio will at night hear any signal that my spotter radio will hear except for weak signals 10kc either side of my 3 local stations. My crystal radio will hear 95% of the daytime signals that my spotter radio will hear. On a good cold winter day, I have received 57 stations. My radio, traps, and antenna system are exactly the same as used in the 2008 contest. I could not find any way to improve the system.

This year's contest had unusual conditions here. The first day had very good receiving conditions. The second day had good conditions. The band then stagnated. It did not change for the rest of the contest. The stagnant condition was not what I would call a normal winter condition either. There was no flux or change (due to weather conditions) to cause stations to appear and disappear. For day after day it was the same old stations all up and down the band.

The contest was fun to work as always. My list of all time stations identified on the broadcast band now numbers 505 stations. I identified 66 stations this year that I did not hear in the 2008 contest. That means that I identified 36 stations in the 2008 contest that I did not hear this year. In the 2009 contest, I logged 4 stations from New York state, 1 from Boston, 3 from California, 2 from Philadelphia, and 25 stations from Canada. I identified stations from 31 different states, Canada, Mexico, and Cuba. IBOC probably cost me 3 or 4 stations to not be logged this year

Below is a summary of my activities during the 2009 crystal radio contest.

Stations			
Day	Logged	Time	spent
1-16	197	15 Hr	35 Min
1-17	32	12 Hr	20 Min
1-18	27	11 Hr	20 Min
1-19	21	11 Hr	10 Min
1-20	11	8 Hr	0 Min
1-21	9	7 Hr	20 Min
1-22	8	6 Hr	50 Min
1-23	8	8 Hr	15 Min
1-24	7	7 Hr	35 Min
1-25	8	10 Hr	20 Min

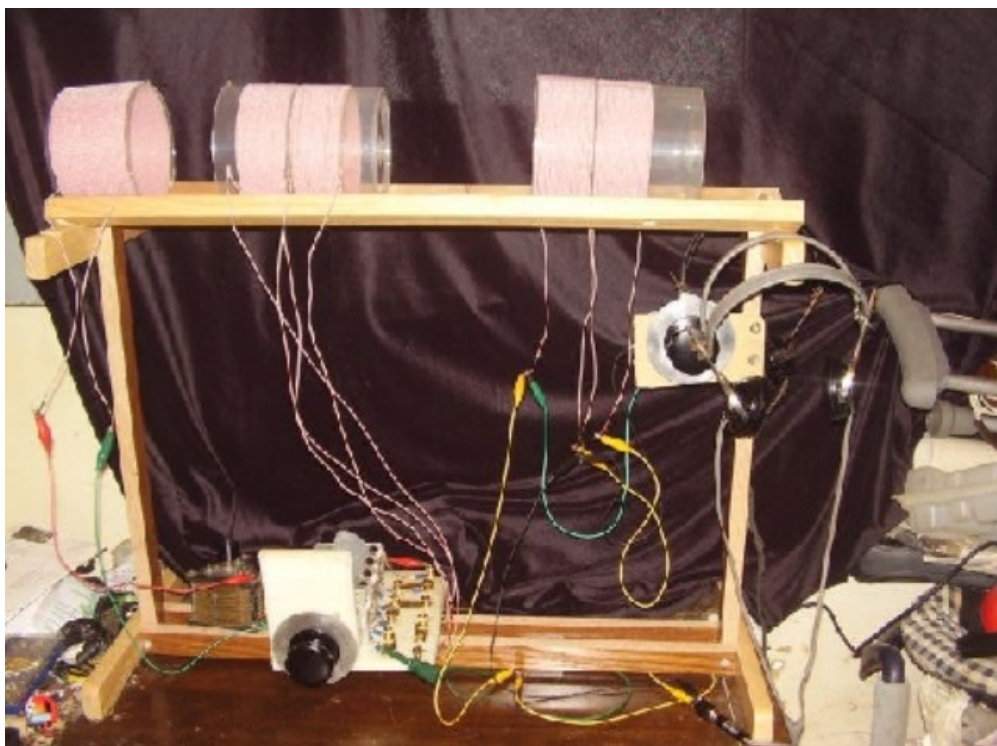
Total time spent - 98 hours 45 minutes

Total stations heard - 328

Total stations identified - 312

Total points - 583,312

Michael Bartolone, Open Class Entry



My current contest rig has contra wound solenoid coil 5.25 in diameter, each section 29 turns of "indoor antenna wire", 2.15in length per section, single gang 400pf air variable cap, unknown diode scavenged from a clock radio picked up at Goodwill (the diode has two red bands on one end and no other markings), Clevite brush phones.

Coils suspended in a slide cradle 20 inches above the desk. The tank is loose coupled to an ATU with contra wound solenoid coil 5.25in diameter, each section 26 turns switchable so I can use either single section, or both in series, or in parallel, with a 5 gang 380pf per gang cap switchable to put various gangs in series or parallel with the various coil configs.

One tunable trap with a single 5.25 in diameter coil, 43 turns, 3 in long with 440pf cap for tuning.

Note the "indoor antenna wire" is like very cheap litz...35 strands individually insulated but only twisted, not braided like true litz. However, the price was too good to pass up (\$0.02 per foot when I bought it).

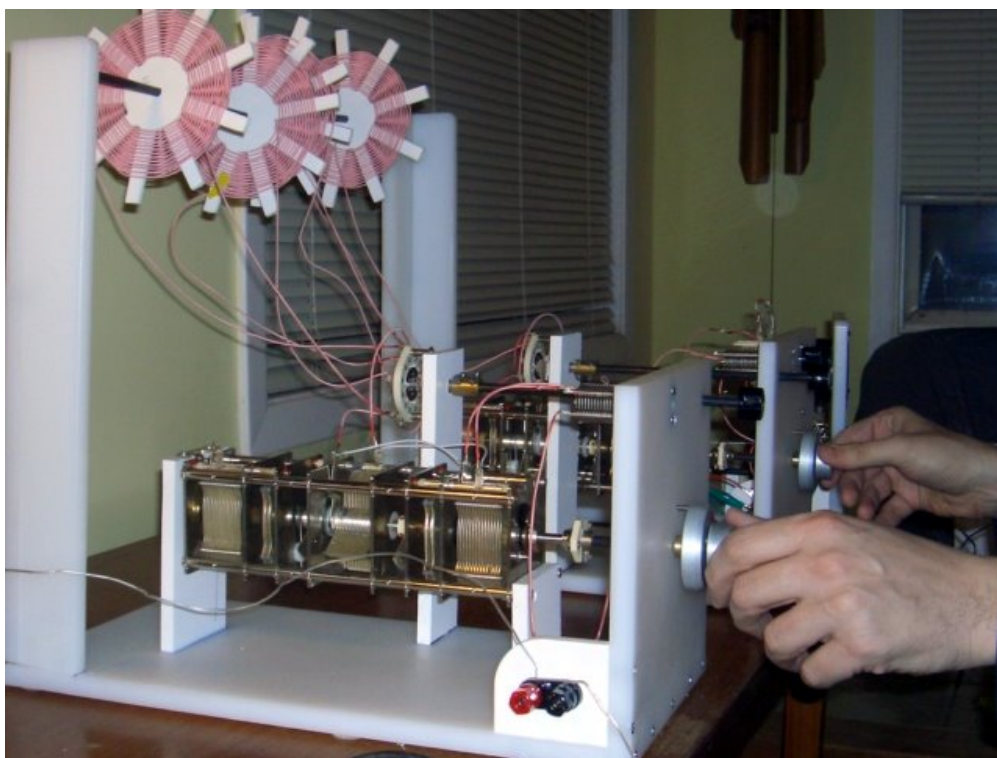
My antenna is a 75+ foot long wire (16ga speaker wire) average about 12 feet above ground, run from the eaves at one corner of the house to a tower about 35 feet from the house and then back to the other corner. The ground is a single copper clad rod about 3 feet long about 2 feet into

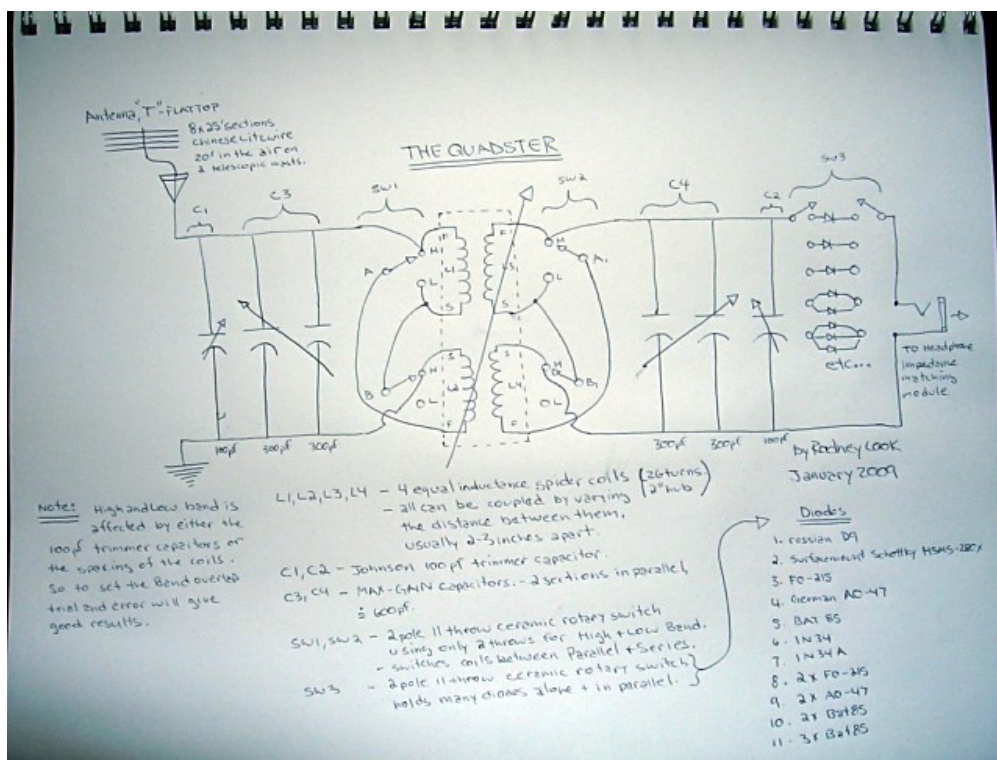
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Crystal Radios Of The 2009 Contest Entrants

Page 3

Rodney Look, Open Class Entry

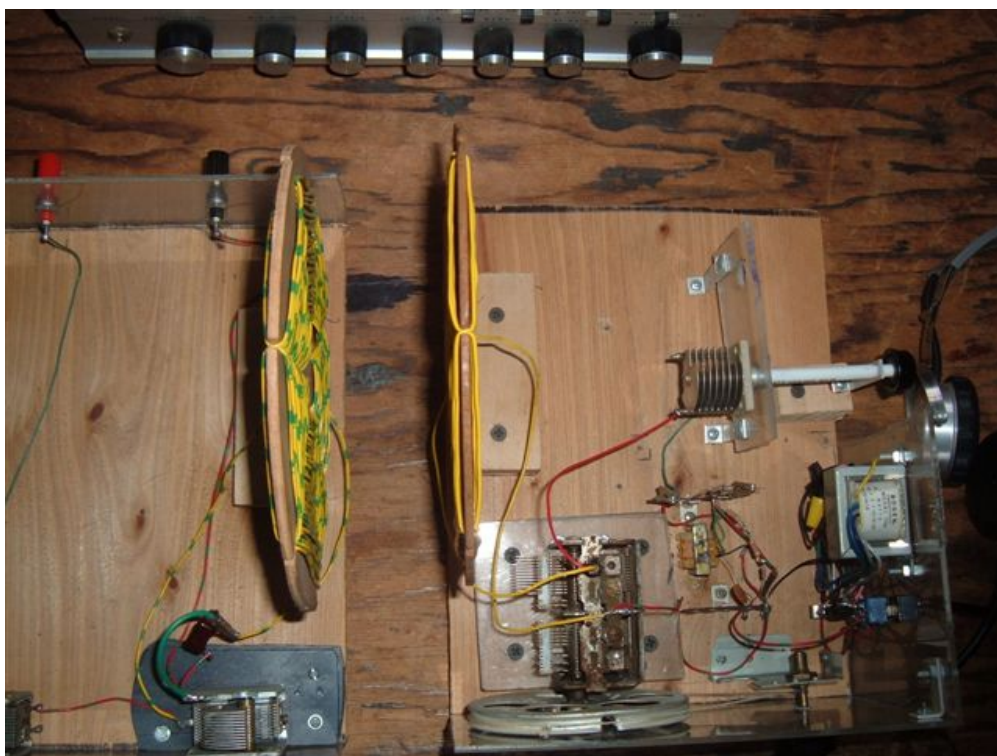




Here is a link to the [The Pictures Slideshow](#) for more pictures of the set.

[Here is a link](#) that shows the location of the stations copied.

Glen Yarbro, Open Class Entry



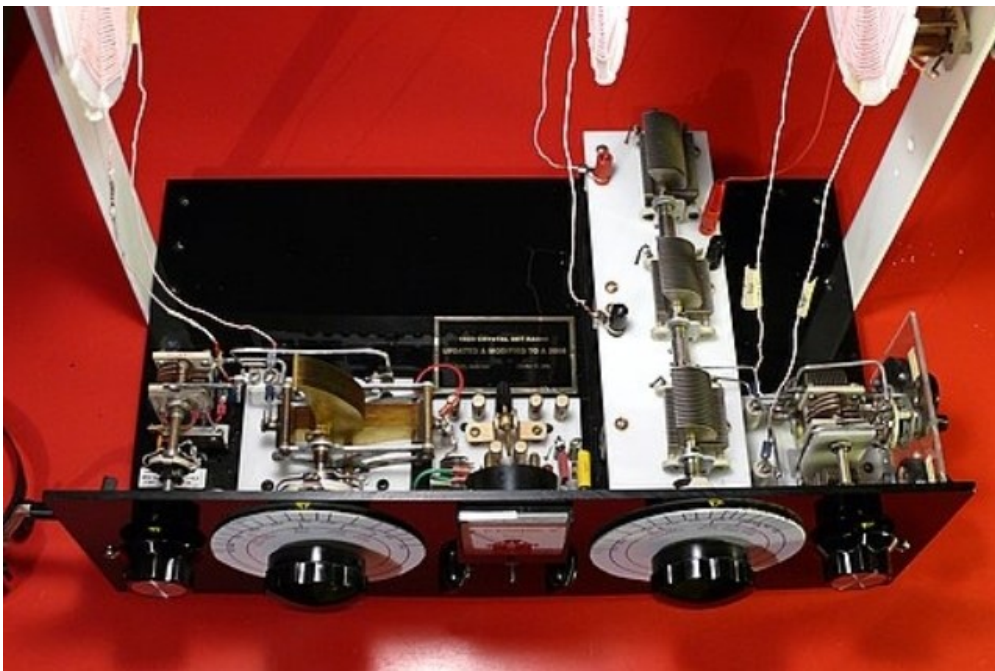
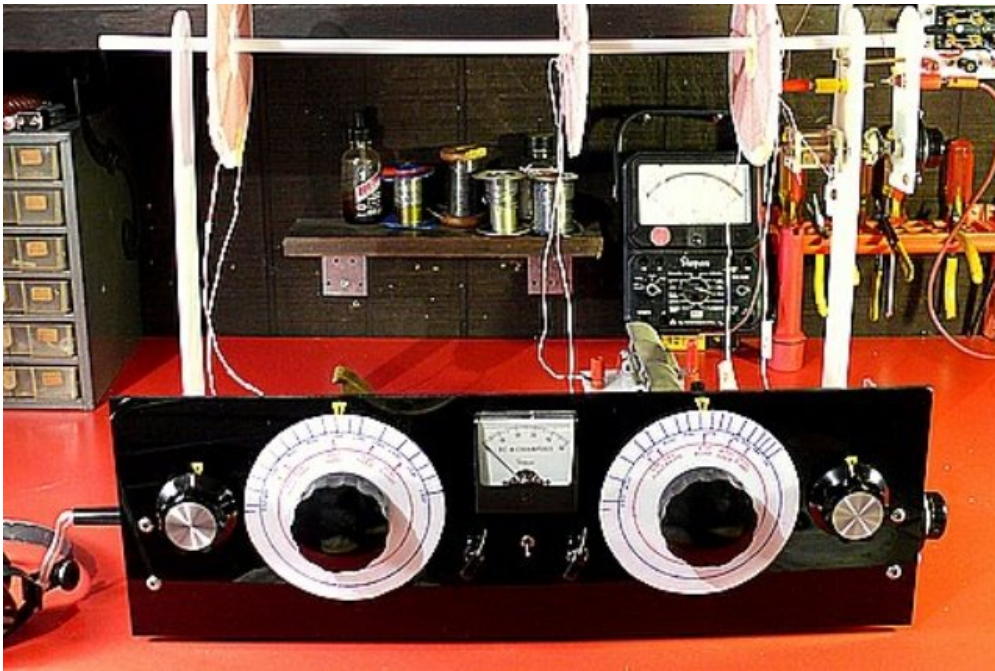
Radio : [Dave Schmarder's #44](#)

Antenna: 80m trap dipole, 30 feet high

Headphones: 4 k Navy phones

Coils were wound with 24 gauge Bell Wire

O. T. Anderson, Open Class Entry



This crystal set has been modified several times, the dials, Var Caps, and wave traps. Being a ham operator I really liked calibrated dials. Some of the local stations are in red.

The right hand 3 tuning caps are the Hammarlund type. The three caps which are ganged together is a "Tuggle" front end. The detector cap is an old ancient job from a very early radio. I modified it using HDPE to replace old brittle bakelite. I don't know how good it is, but it looks and feels great. It has good band spread down at 1200-1700 kc. The three coils and output Xformer I bought from that good man, "Dave".

The two right and left small caps are a band spread for about one station. It feels good to "rock" these a bit on a weak station. The "S" meter is a real help. A 3 position switch gives a off, normal and high position. I would not built a new set without one. Since this is a "crystal set" I had to put in new (old type) "Cat Whisker". Can you see it? It also has a place for 3 diodes.

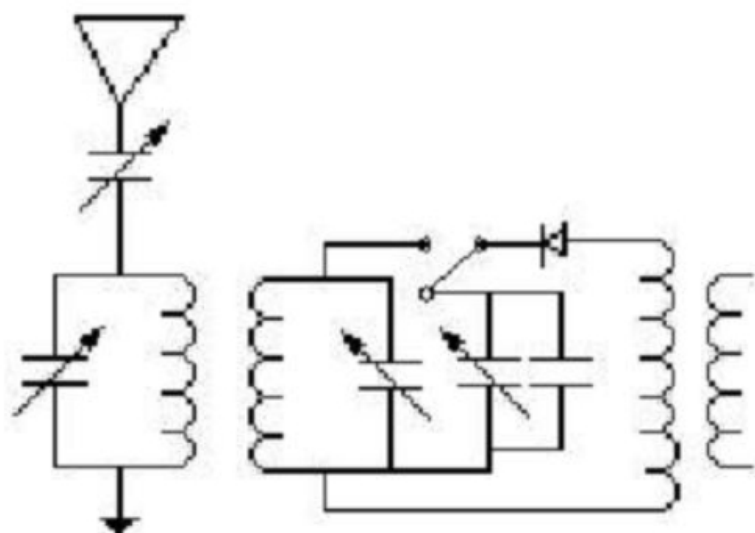
My biggest trouble here in Broken Arrow, OK is 1170 kc. That's KFAQ, old KVOO, 50,000 watts. Big 50,000. Has three towers, see them from our house. I have 2 wave traps, one 1170 and the other is 740, KRMG. The switch and stationary caps are at bottom right. Works OK, but 1170 is still in the back ground.

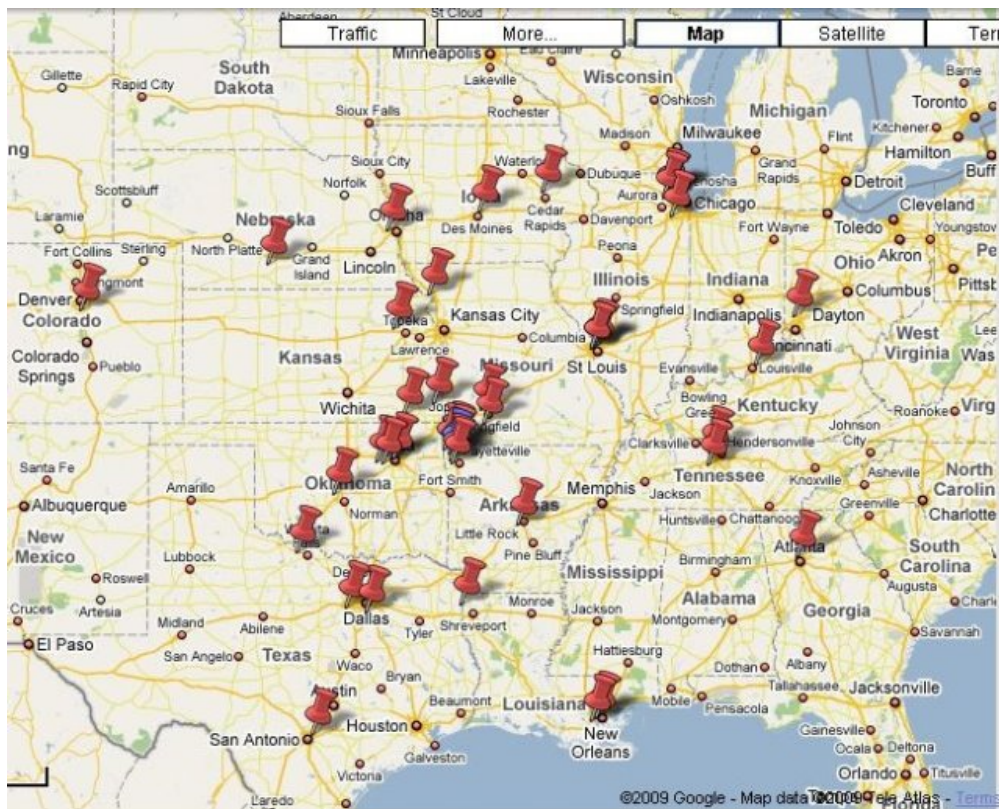
Built up an external trap. It's still there. I accidentally found the trouble moving the set around one day, cleaning up. I nulled out 1170 as I had the set turned around so-so. Apparently the detector coil is a good antenna just like an antenna in a AC-DC radio. So what should I do? Relocate my operating desk, or better yet build a new set patterned after THE LYONODYNE, (which has wave traps on the detector coil).

My wife, Doris, K5BNQ, wasn't crazy about me being back in the shop. She said, when it gets dark, I should come in, build a fire in the fire place, read the newspaper, and have a big cold Pepsi or Mt. Dew. Then maybe she would give me some real good home made chocolate cookies!!! And some ice cream!!!

Who could beat a deal like that?

Mark Hampton, Open Class Entry





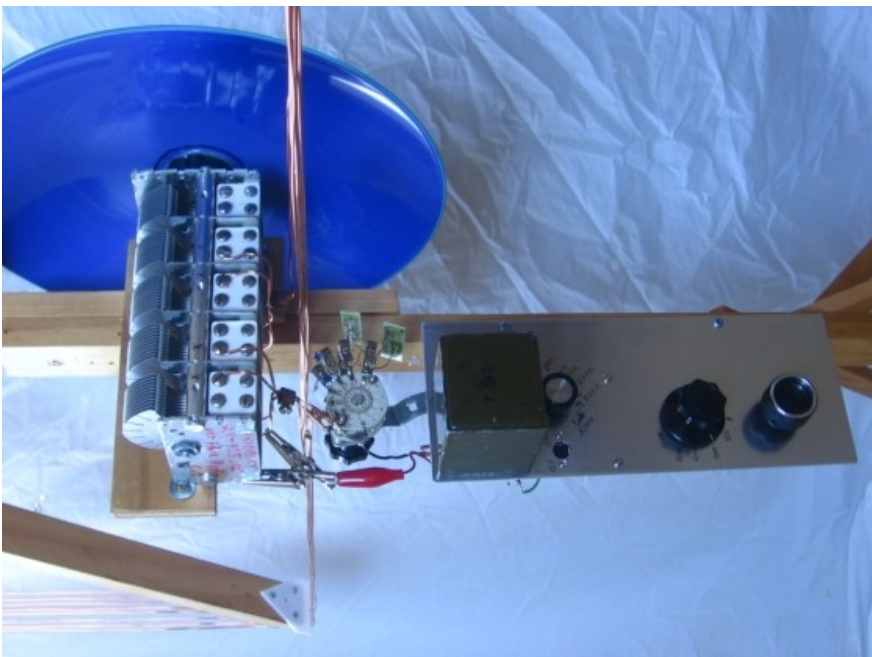
My set is a simple double tuned with a Tuggle front end and home brew friction reduction drives. A high/low switch spreads out the band a little further. The "high voltage insulators" are wood toy wheels stacked up and painted white. I thought it would add to the industrial look of the set.

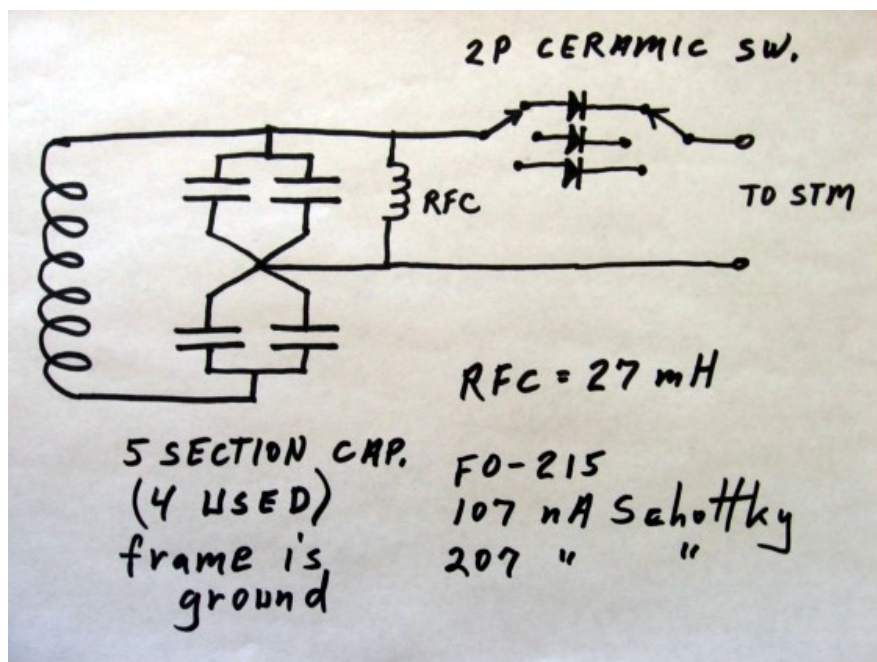
My antenna is a 300' longwire, 30' in the air and oriented NS. The ground is tied to the cattle fencing (welded wire on metal post every 10') that runs all over this part of the county.

The unit is sitting atop my universal match box. The headset is SP units mounted in old Olympus stereo headphones.

The barely visible blue pin is my location on the map.

Garry Nichols, Loop Class Entry





This is the same set used in the 2008 contest, except for a few minor changes:

-I took off the Select-To-Match this year and ran the loop with only the T3/AM-20 transformer (100:100k) and a 107 nA Schottky diode.

-Big can mic elements in series had a 2 uf electrolytic between them and the transformer.

This setup (with short leads) got rid of my FM interference completely, and I did not hear the intermittent hum that I was picking up last year from various orientations of the loop.

Kevin Norton, Open Class and Short Wave Class Entries

Sets: On B'cast I used the K-3 xtalset. It is a 75 ft longwire through a wiperless ceramic 4 gang, then to a 4 ceramic gang wiperless tank (660/46 ferrite assisted air coil). Each var cap is wired so that a 500 gang is bussed to the adjacent 500 gang. So two 500 gangs equal one leg of my cap. The gnd is to the FRAME of the tank var cap (NOT the "cold" stators).

The det tank uses the same coil type and var cap type / wiring layout. There is no det tank connection to Earth or ant tank.

All caps are 6:1 ball driven and have oversized insulated wooden knobs.

A single FO 215 was used fully at the hot end of the det tank. Although single Schottkys HAVE been used in past contests, results were worse this time (for whatever reasons).

The match is 2x UTC A-27s and the phones are David Clark SP types wired in series @1200ohms.

Future K-3 improvements could include raising the match Z by wiring in additional A-27's, changing the benny pot to a higher value and trying various benny caps. Also a set of high band coils should wake things up quite a bit on the high end.

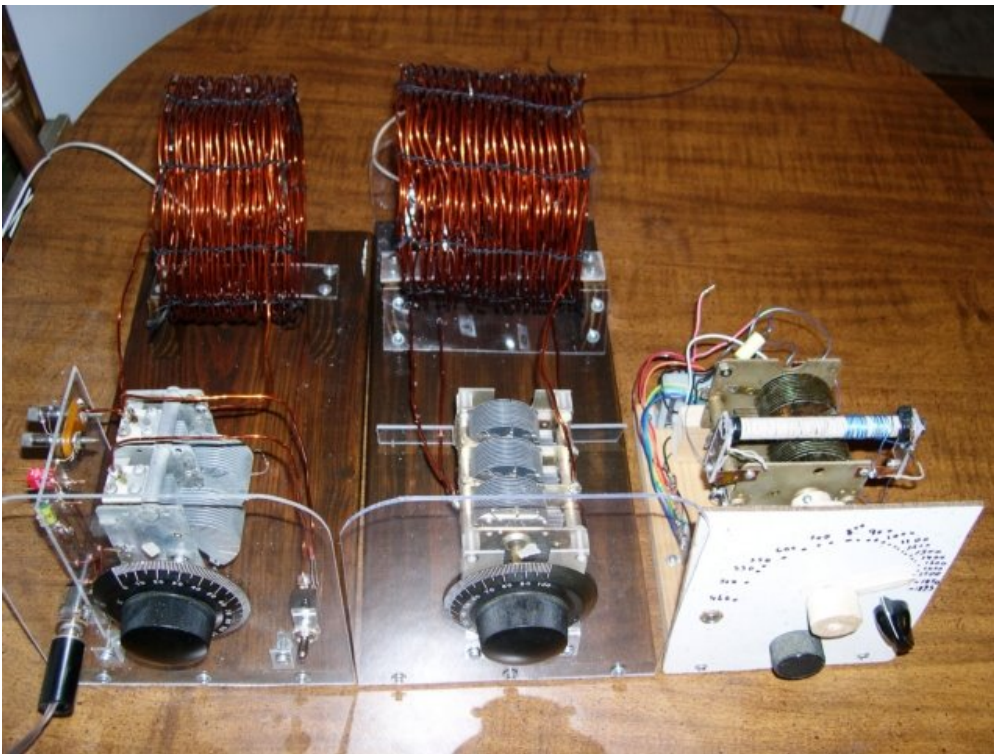
An outboard applied RF bias is available by a weak signal digital B'cast transmitter and coupled to the set by an unterminated litz air coil. This transmitter only covers 600 Kc and up, so an analog Heath signal generator fills in from 530 to 600. Using just a tiny level of (variable) RF greatly narrows the bandwidth. Strong locals are obliterated and signals otherwise NEVER copied come into good audibility. There is an almost "regenny" sound when doing this.

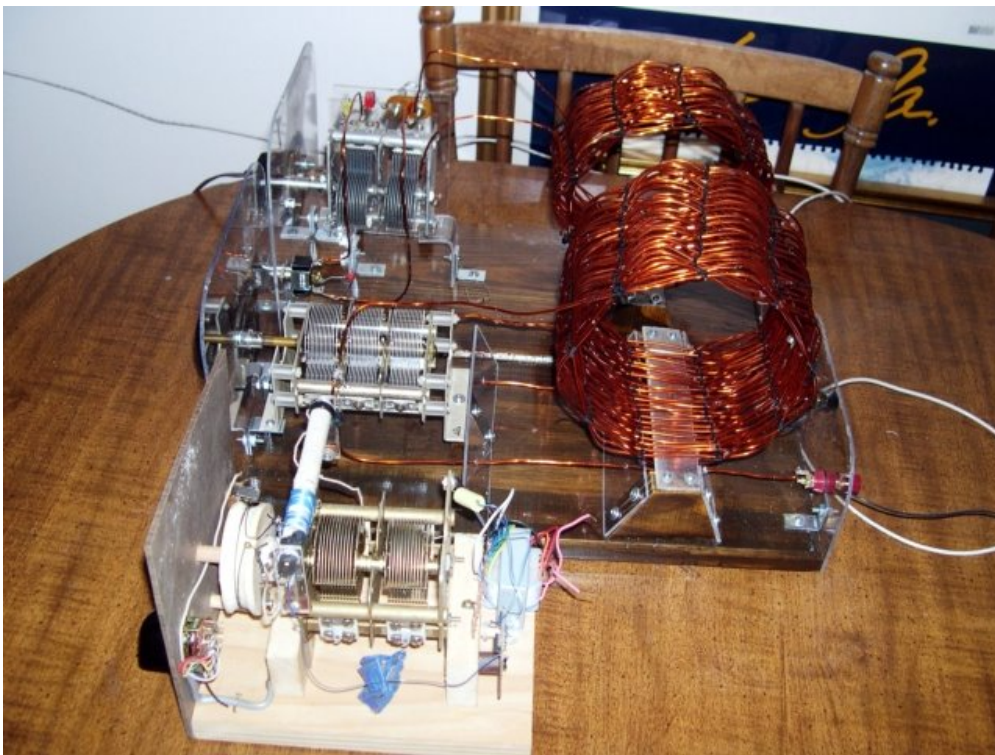
I can find stations by using the analog or digital scales, bias the set into the "supercharged" mode, and then peak all controls. Then I simply shut down the RF, move the bias coil away and wait for a signal to come up into true xtalset passive copy.

The HF set was a simple affair. A wiperless ceramic var cap on 11uH homemade > air dux. There is a two turn ant coil . The tank has no gnd . The det is an unknown diode directly into series xtal earphones.

Overall a good a time, despite a slow start.

Curtis Gamble, Open Class Entry



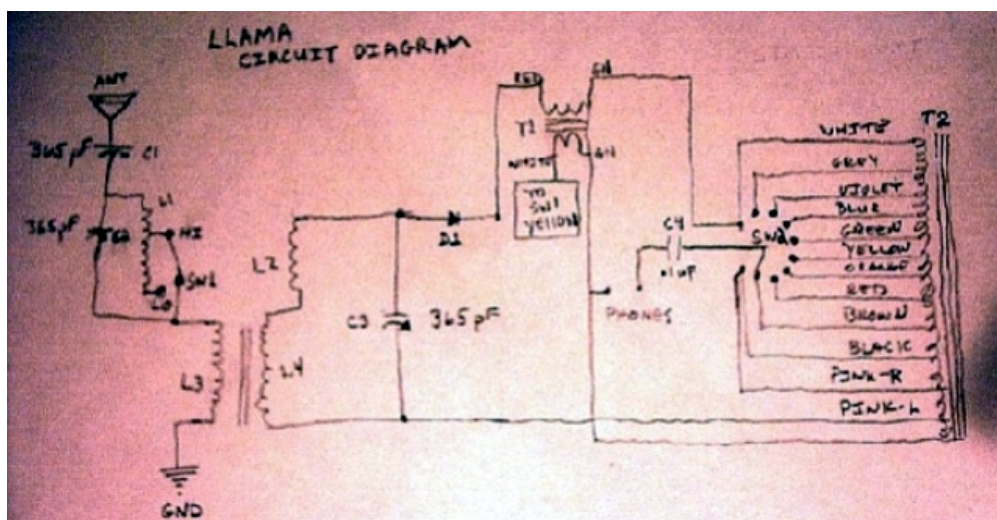
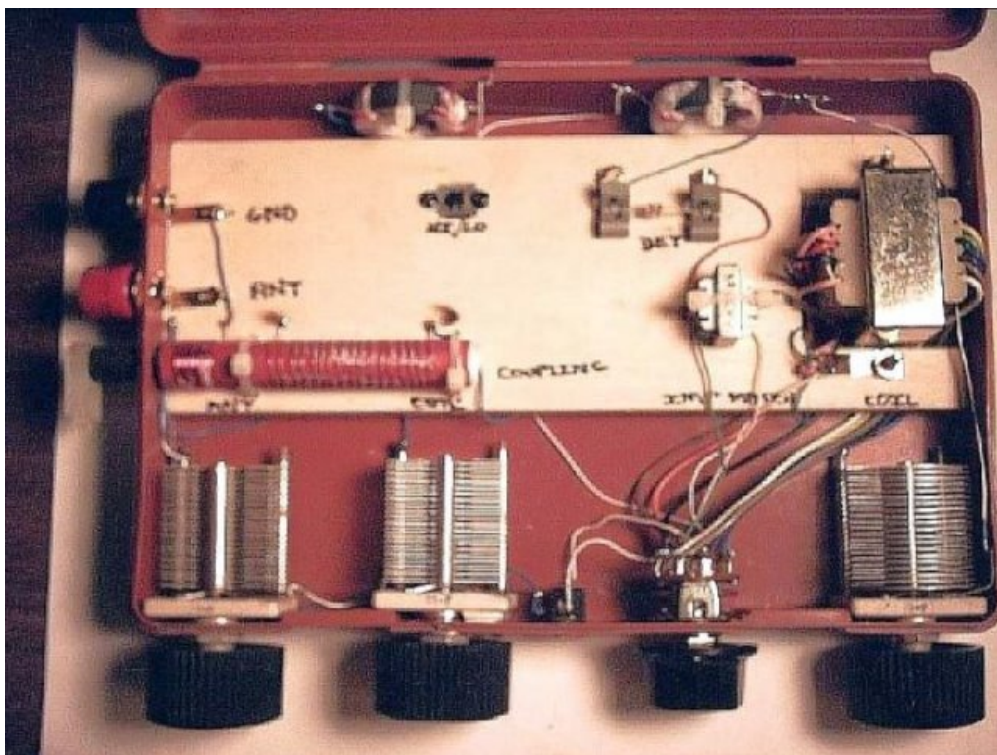


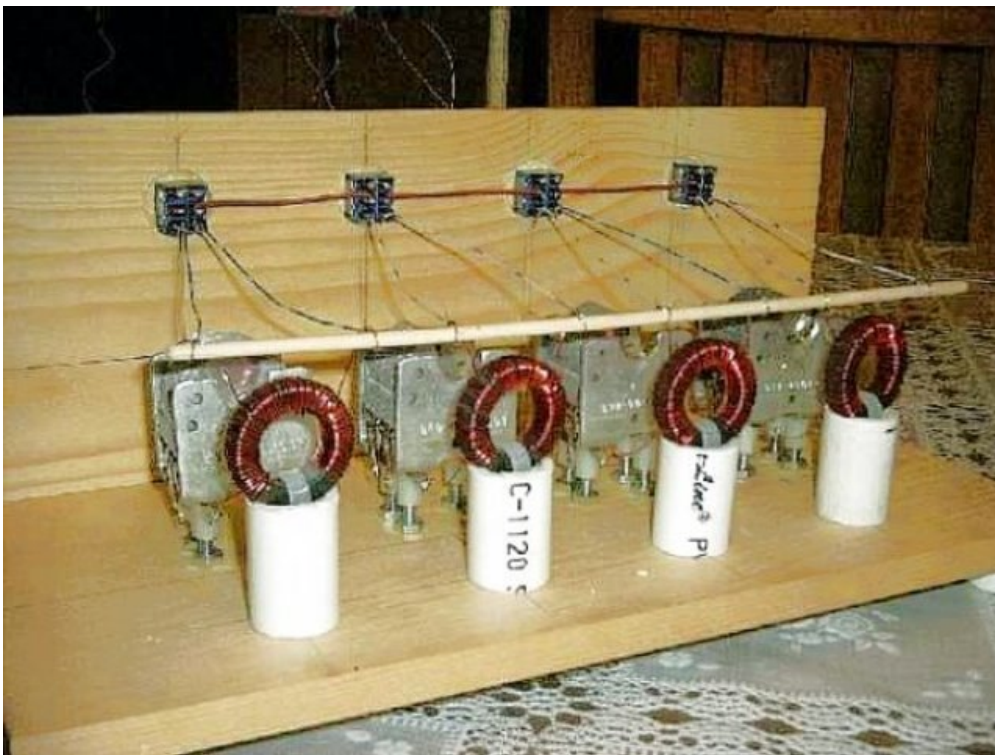
This is my first passive receiver that was not a bread board set. It includes a Tuggle antenna turning unit with 12 gauge enamel wire rook coil, center of the picture, a 1N34 detector with 14 gauge enamel wire rook coil, and a Triad SP 21 300 Hz to 100Kz response output to sound powered head phones.

The unit to the right is an IC detector with an ALD110900A and BOGEN T725 trans- former to the same sound power headphones. The 160 meter flat top dipole is up about 45 feet, plus I use a 50 foot long wire, and a house copper water pipe ground.

I have two locations I can work, my old home place in Tuscaloosa, Alabama in the same shack I've had for over 50 years, and the home I live in now in Hoover, AL. I worked this contest in Hoover, Alabama. This location has very low noise, and after sunset the local blow torches are not a issue. I normally don't use a trap.

Charles Pullen, Open Class and SW Class Entries





This is the same radio I used in the '07 contest, with no additional modifications. I call it the Llama, because of the case it's built in.

The antenna this year was a 40 foot inverted L, about 25 feet above ground. I added two additional ground rods to my ground system this year to compensate for the smaller antenna. I had to make extensive use of the wave traps this time around, the locals at 1080, 820, 770 were totally dominating the middle of the band.



This is a very simple SW loop antenna radio I converted from a QRP 40 meter small transmitting loop I built about 5 years ago, and has been beaten up quite a bit over the years. It consists of a four foot diameter, 1/2 inch copper loop that is paralleled with a 365 pf air variable capacitor and a 1n34a diode detector.

I hooked it to my copy of Steve Bringham's ultimatch unit for impedance matching and listened in with a pair of philmore xtal earplugs in connected with a radio shack mono y-adaptor.

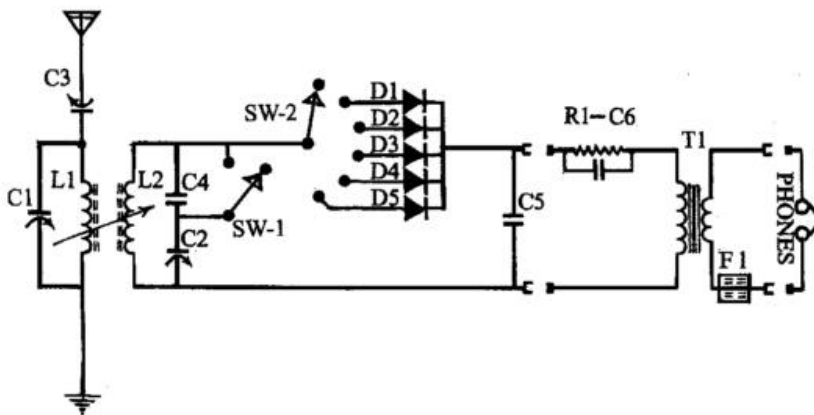
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

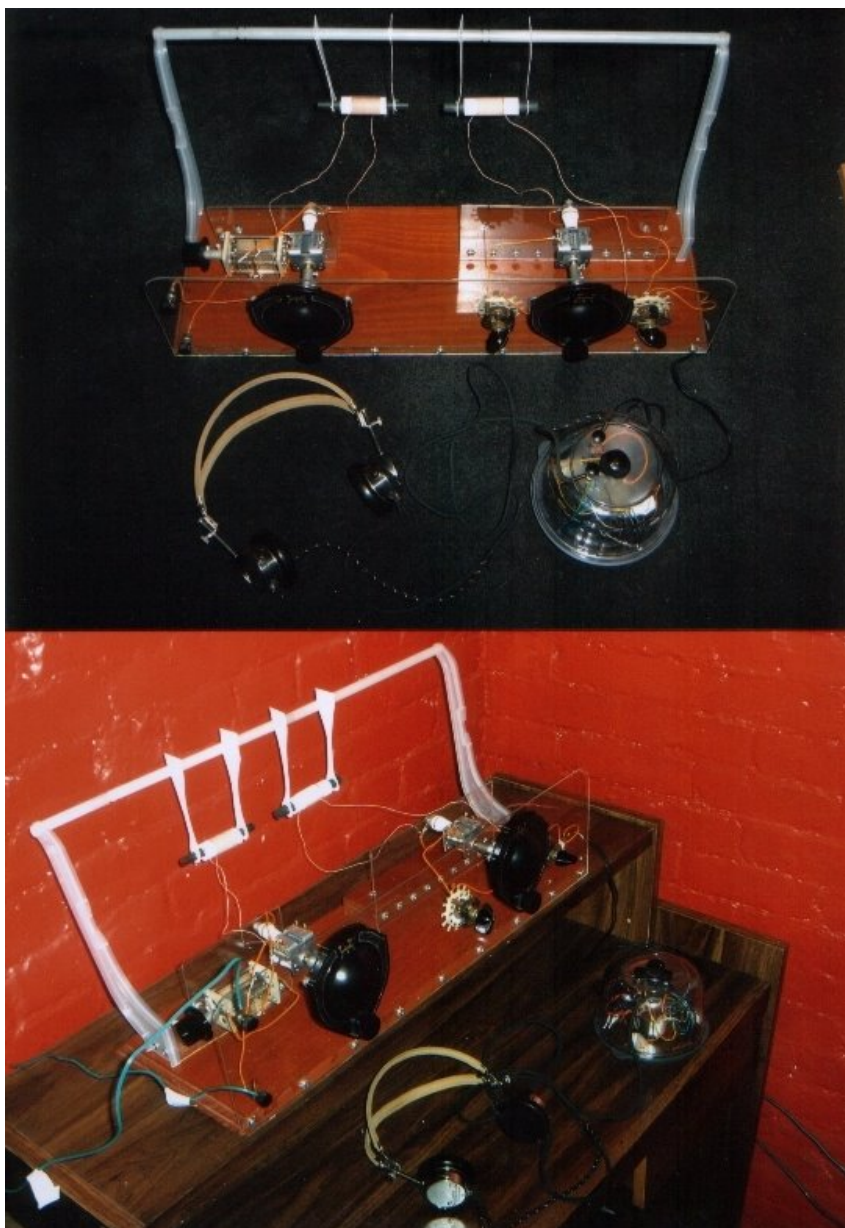
Crystal Radios Of The 2009 Contest Entrants

Page 4

James Gallant, Open Class

2009 DX CONTEST SET - JIM GALLANT





Due to a dispute with a former landlord (NOT related to the radio), I lost my previous office, radio loft, and 5 story high, 115 foot long-wire antenna for this year's contest. I also used the same mediocre "throw together" 100/46 Litz wire dual-tuned set that I whipped up last year. I still used my simple Bogen T-725 transformer driving a pair of 1925 vintage Western Electric 509-W headphones. I had to run it all off a long-wire antenna only 20 feet or less off the ground, bent around all over the place to fit my back yard.

Strangely, this year the radio seemed to work FAR better with the antenna (series) matching capacitor moved from the antenna line above the ATU tank, to the ground wire BELOW the ATU tank; most likely due to the vast differences between to two antenna sites used with the set in 2008 and 2009. This gives further evidence of how two different builders with two basically identical sets have been getting different results as to where to put the ATU series capacitor. With the same radio, radically DIFFERENT results, depending on the antenna used).

My only other change was the replacement of the approximately 46K fixed resistor in my "Benny" with a 250K audio taper pot - a noticeable improvement.

I assumed the set performance would be much worse overall than last year, but I was pleasantly surprised. Although it did have poorer overall reception of New England area stations, it did as well or BETTER on DX. In fact, I raised my total station count this year from 62 to 68 stations, with fewer of them being locals (Nashville was my furthest hit, I believe). It raised my points from 42,000 to over 64,000 - a 50% increase. I attribute this to the fact that this is my second contest.

I am getting more capable with the "spotter radio" in identification of stations, as well as hunting stations down on the Crystal Set after first isolating them with the spotter. Hopefully for next year I will have a 660/46 Litz "dream set" hooked up to a nice set of SP phones and a decent 30 foot high, 50 foot long 4-wire flat top antenna squeezed into my yard. My overall goal is fairly modest. Massachusetts is notoriously BAD for crystal radio DX. The glaciers in the last ice age pushed billions of tons of our topsoil down into the Atlantic Ocean south of Connecticut. As a result of this, we have poorer and less efficient grounds than other regions.

Assuming a 450 mile average maximum DX "listening circle" for the average set, over half of MY circle here in coastal Massachusetts is to my east, over the wide open empty ocean. If I can ever manage to break a 100 station level count, I will consider that winning my own personal gold medal!

James D Fletcher, Hobby Class





I built the MRL No. 2A "Long Distance Crystal Set" from plans I got from Mr. Elmer G. Osterhoudt. I used parts from what I had on hand and wound the coil on PVC pipe. This was in 1979 and my oldest son was 10 years old, so this was a project we worked on together and gave him some practical experience he still uses today.

I put the works in a 8" x 5" oak file box that office supply stores used to sell. I use a type "C" Baldwin headset that really makes a difference compared to regular headsets. This is the same set that I used in the 2008 Contest.

Lem Morrison, Open Class

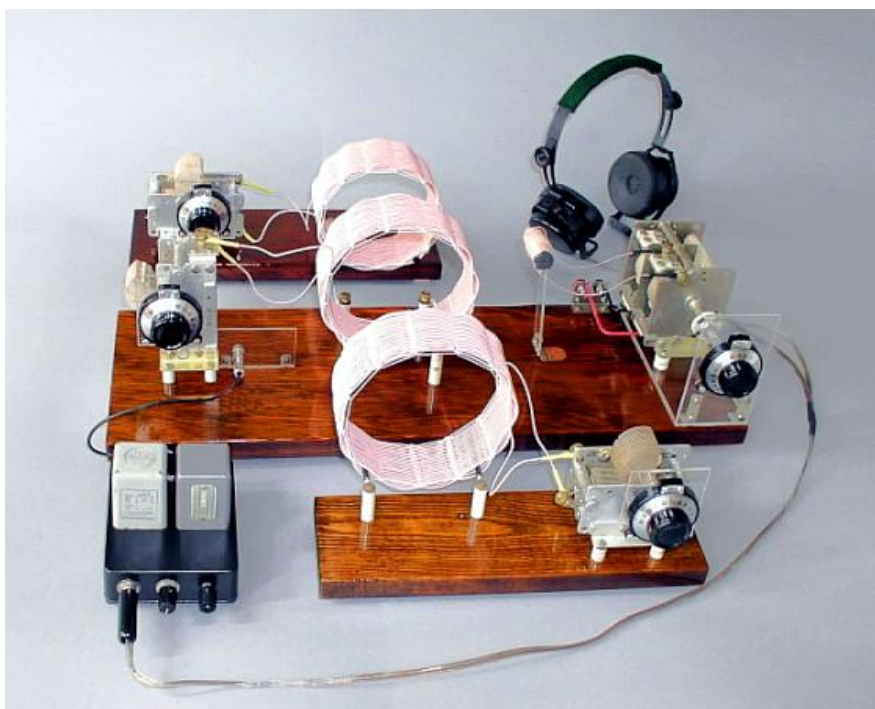


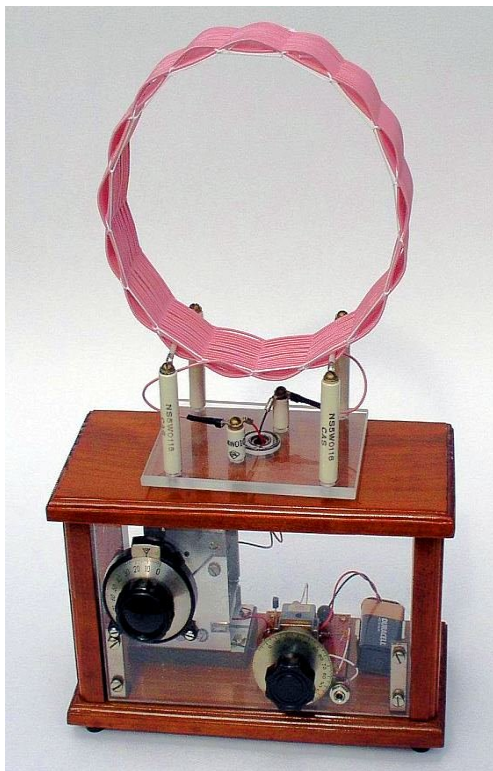
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Radios Of The 2010 First Final Farewell DX Contest Contest Entrants

Page 1

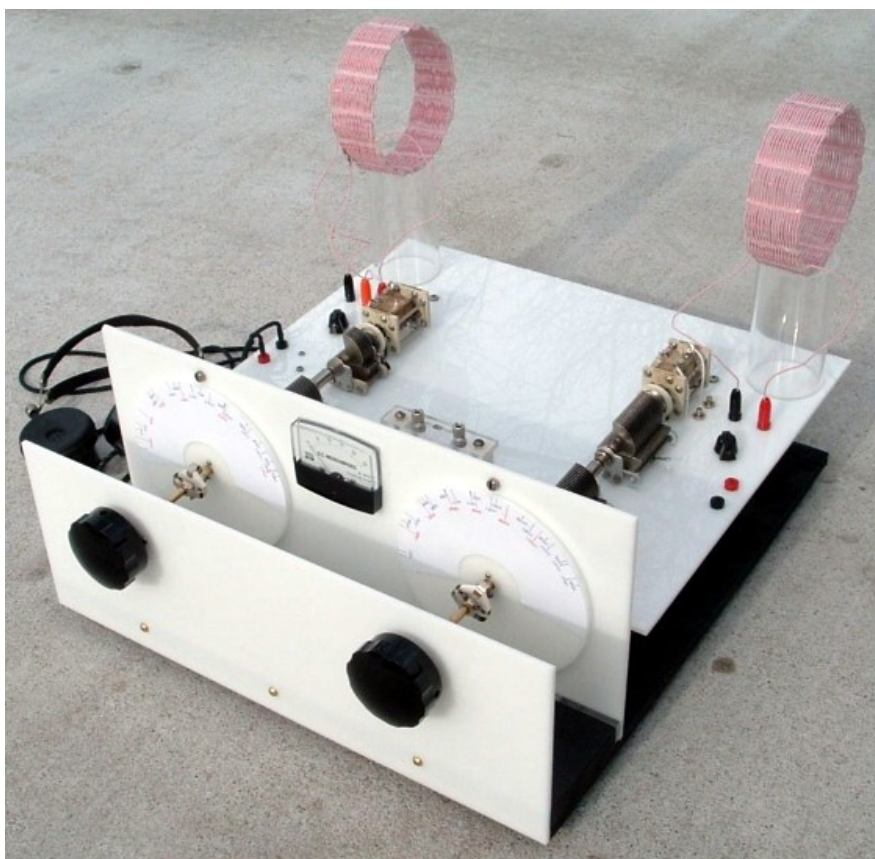
Mike Tuggle, Lyonodyne-17, Open Class Entry

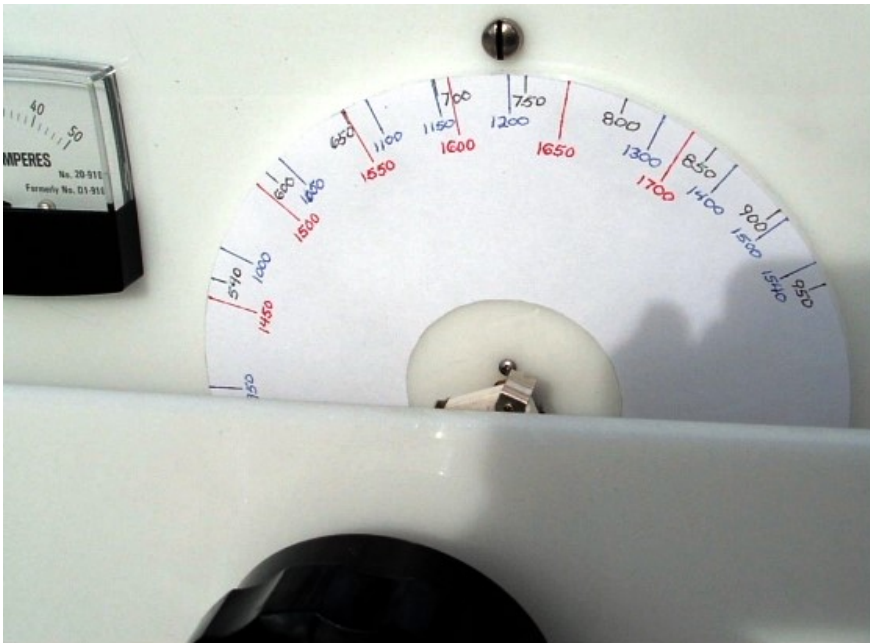




The Lyonodyne 17 was used in the crystal set category, the same set used last year. The Active Device set used in the contest is the Homodyne. Click [here](#) for the info on the radio, as used in the 2007 Active Device Contest..

Evan Haydon, Open Class Entry





This year's crystal radio contest was fun, even though it was long. The broadcast band conditions in Lincoln were what I would call normal or generally good. I used the same crystal radio and antenna setup that I used in the 2009 contest.

23 radio stations that I identified in the 2009 contest were not heard in the 2010 contest. I identified 24 new stations in the 2010 contest to add to my all time heard list. That list now stands at 536 stations identified. For that number, I only count US and Canadian stations.

In the 2010 contest I heard stations in 33 states from California to New York. I identified 30 Canadian stations, 7 Cuban stations, and 2 Mexican stations. The most stations identified on one frequency was 9 stations on 1190 kHz.

Number of stations per week: (Jan 15 to Mar 15, 2010)

Week 1 - 244
Week 2 - 42
Week 3 - 33
Week 4 - 21
Week 5 - 16
Week 6 - 17
Week 7 - 15
Week 8 - 6

Total of 394 broadcast band stations identified

Total points: 793,421

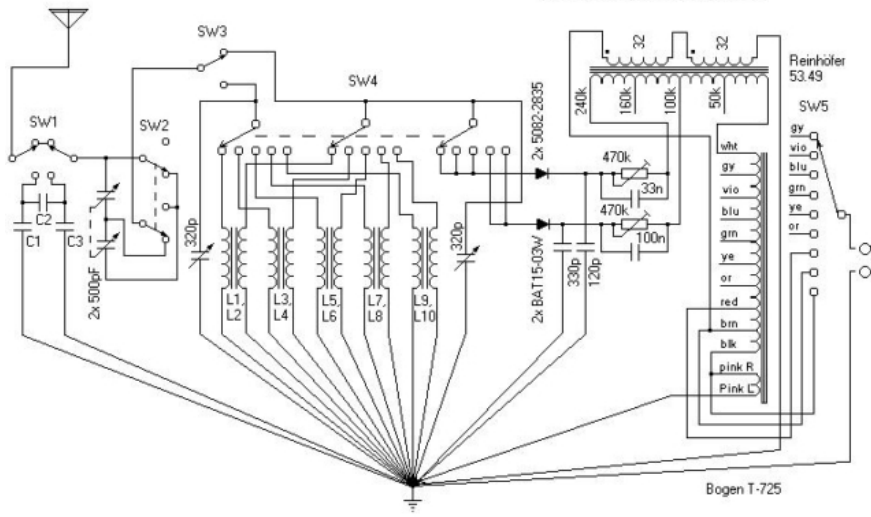
Ralf Siemieniec, Open Class and Below BCB Class Entries

Receiver Used For Long Wave Reception



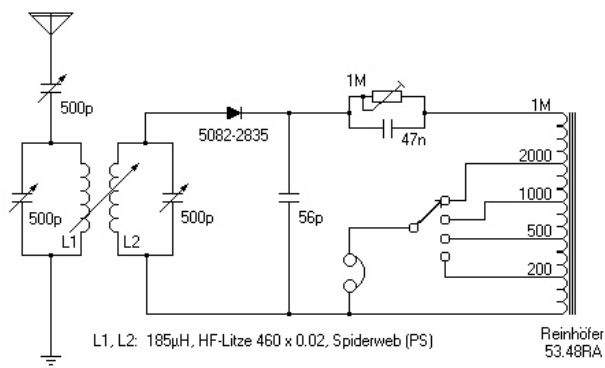
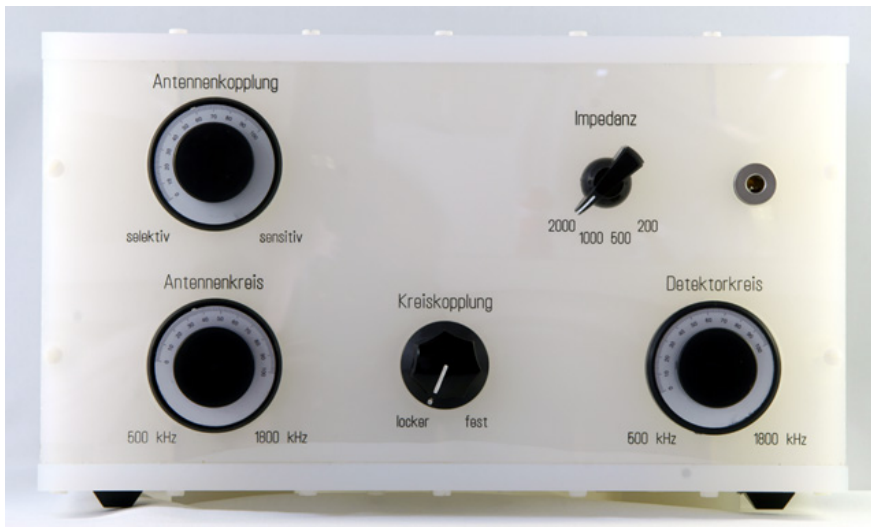
L1, L2: 2x 3700 μ H, Core P18-11 (M33), RF-Litz 80x0.02
 L3, L4: 2x 310 μ H, Core P18-11 (M33), RF-Litz 80x0.02 (2x)
 L5, L6: 2x 90 μ H, Core P18-11 (M33), RF-Litz 460x0.02 (2x)
 L7, L8: 2x 7 μ H, Core RM5 (K1), RF-Litz 80x0.02 (2x)
 L9, L10: 2x 0.8 μ H, Core RM5 (K1), AgCu-Litz AWG24

SW1 - Antenna Volume/Selectivity Selector
 SW2 - Antenna Matching Switch
 SW3 - Single- / Dual-Tune Switch
 SW4 - Band Selector (LW / MW1 / MW2 / SW1 / SW2)
 SW5 - Headphone Impedance Selector



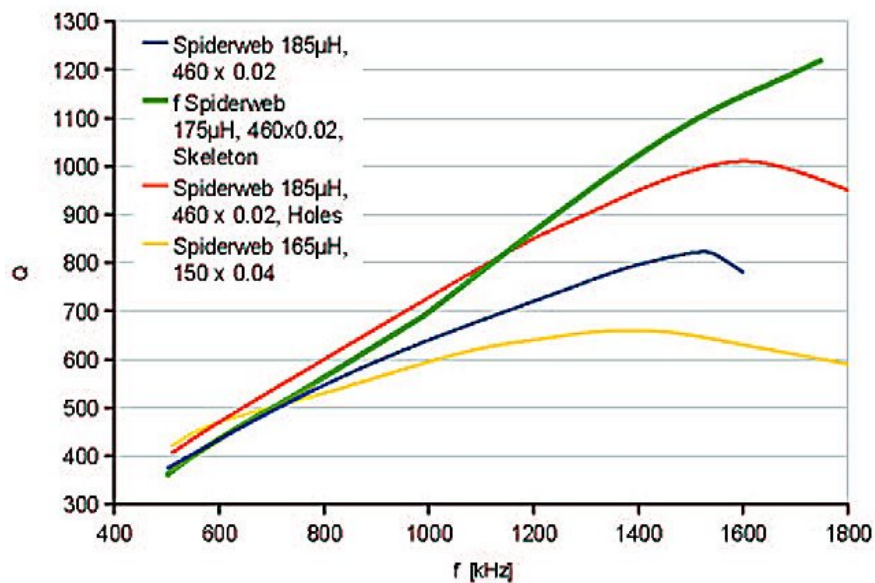
Long Wave Receiver Schematic

Open Class Crystal Set Entry



Crystal Set Schematic

Spiderweb Coil Q vs. Frequency



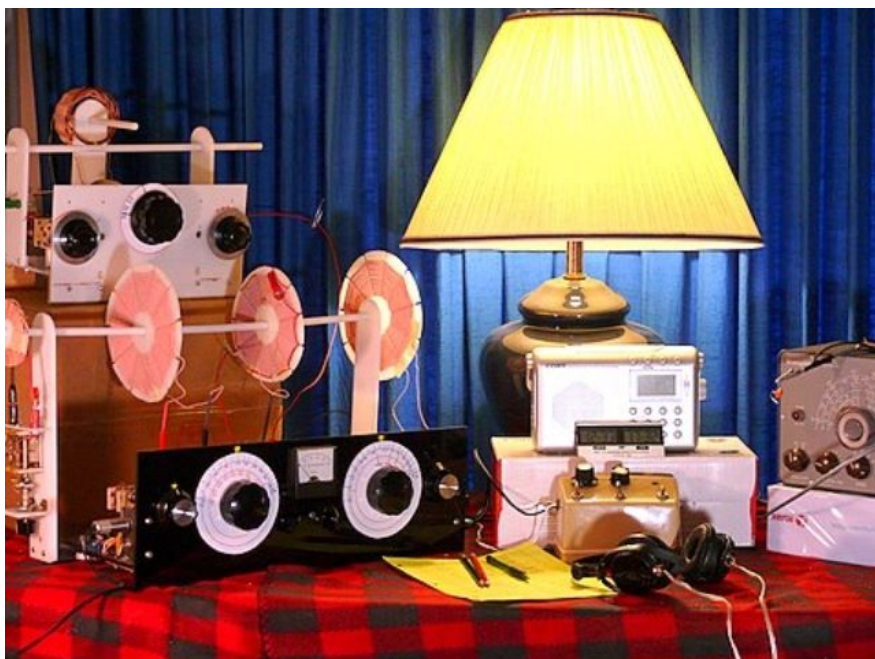
Here is a [map](#) showing the received stations.

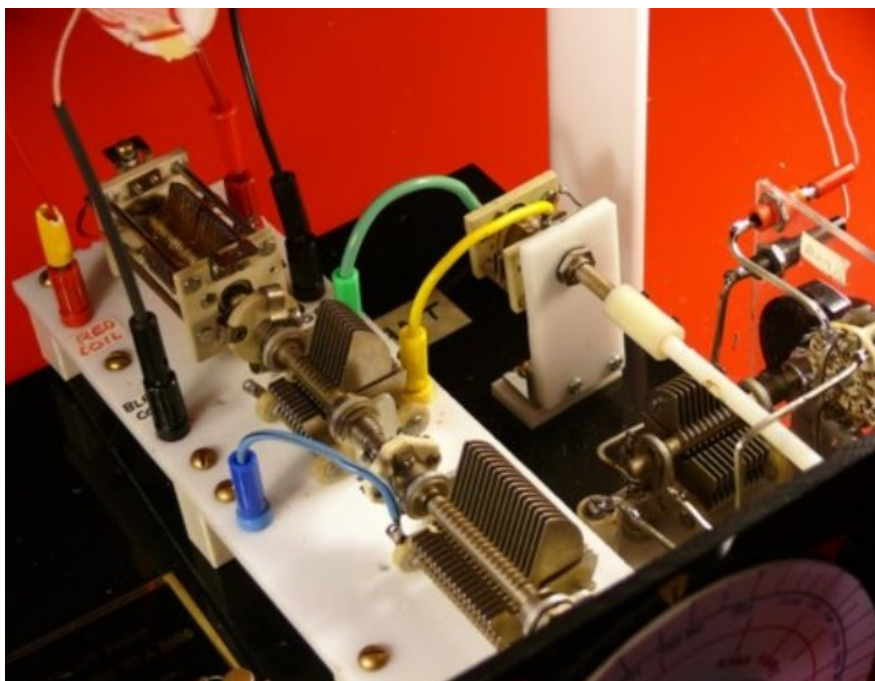
- [Contest Results](#)
 - [2004](#)
 - [2005](#)
 - [2006](#)
 - [2007](#)
 - [2008](#)
 - [2009](#)
 - [2010](#)
 - [2006 Sprint](#)
 - [2008 Sprint](#)
 - [2009 Sprint](#)
- [Previous](#)
- [Next](#)

Radios Of The 2010 First Final Farewell DX Contest Contest Entrants

Page 2

O. T. Anderson, Open Class Entry



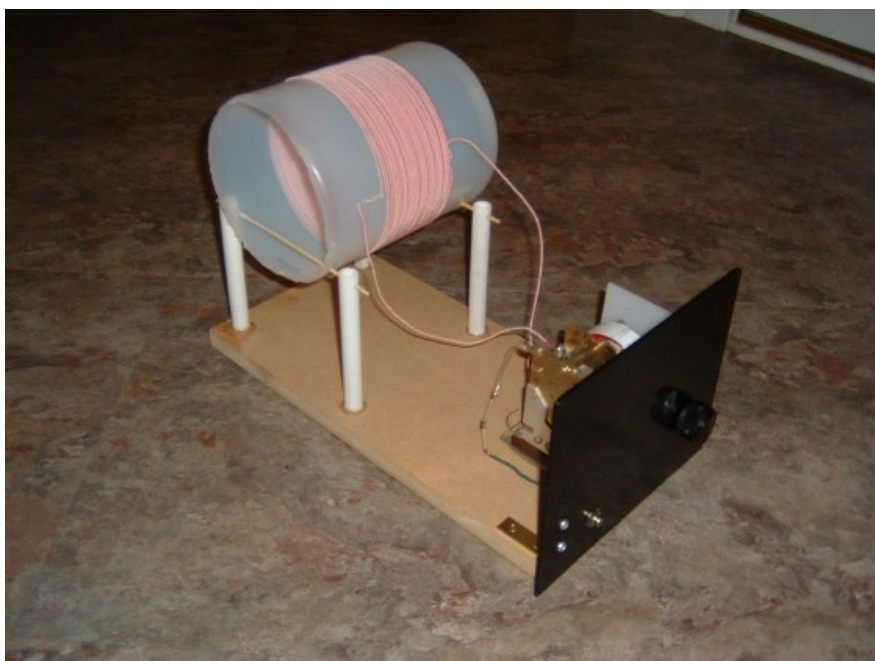


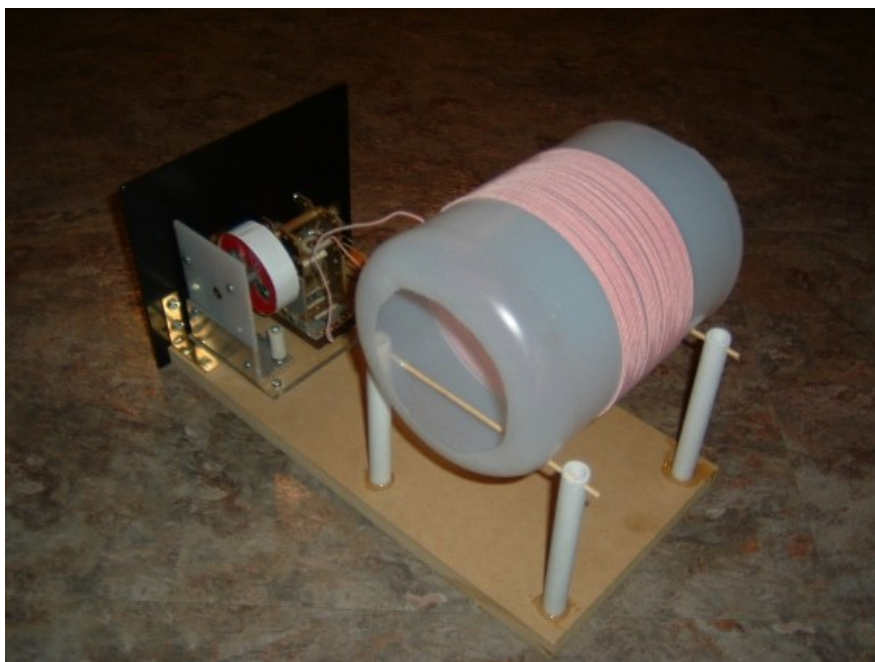
This the same crystal set I used last year with a few revisions. I had 66 stations last year and my goal was to double it. The Mexican stations come in good in Oklahoma.

This crystal set is the same as last year with 3-4 updates.. The extra coils are wave traps for knocking out that KFAQ, 50,000 watts, in sight of our house. Also another 50K across the town. Up high is a new wave trap with silver caps. It will tune any local station. The pictures also shows a "Drug Store" spotter and a Knight Sig Generator. The two dials show the freqs and also spots several local stations. The right dial has another calibration, one is the 1700 to 530 freqs, the other calibrations is the high end freqs when using only the 140 mmfd condenser, about 1750kcs to 1000 kcs. Lots of band spread.

The other picture is the RF section with a silver cap at the far end. It tunes the antenna. The small var cap with the nearest blue wire connects the 2 nearest caps for all the freq 1700 to 540, normal use. With the blue wire not connected we use only the 140 mmfd cap, tuning about 1750 to 1000. This gives good band spread at the high end. The blue and yellow wires connect a 15 mmfd var cap, helps to "rock" in a distant station. If I good get rid of that terrible KFAQ signal things would be a lot better.

Jack Bryant, Open Class Entry

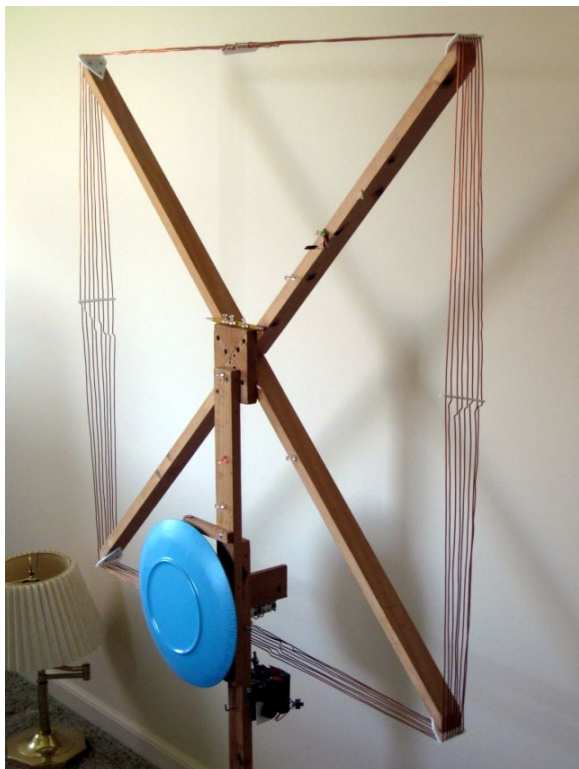


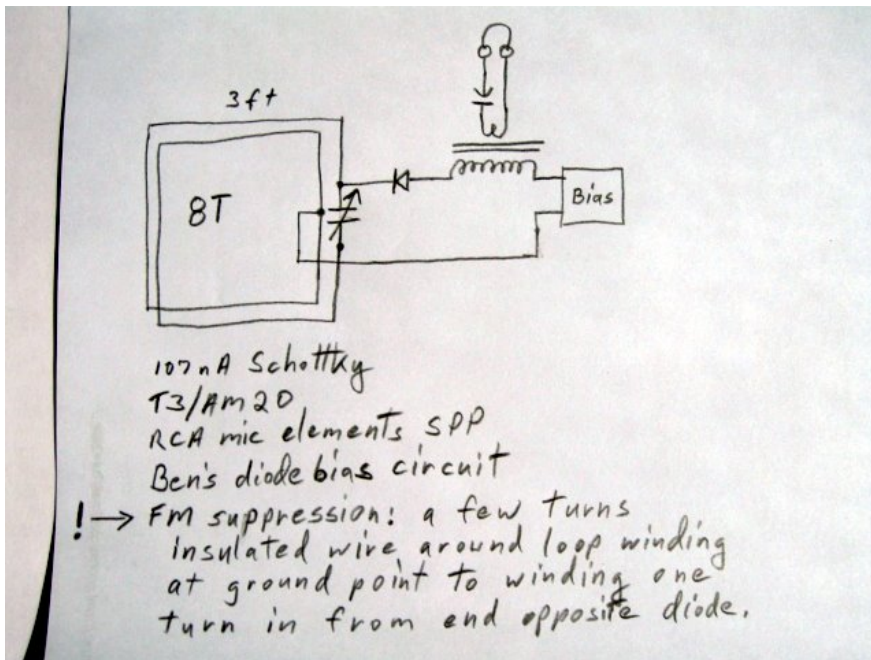


I only worked the last week of the contest, focusing on the broadcast band. I used essentially the same set for that I used in years past.

I have used a Realistic DX-398 for several previous contests, and I used it for this one, too. I used a PC for logging along with paper copy backup. I used a four foot table from Lowe's as my listening post.

Garry Nichols, Loop Entry





(Note from Jack: don't you just love the back of the envelope schematic! A wise sage at work use to say that if a detailed study didn't agree with the broadbrush, back of the envelope calculations, then the detailed study was probably wrong!)

A few changes for my loop this year:

- 1) Turns spreaders at the midpoints of the frame tightened things up and stopped rattling wire. Don't know why I didn't do this sooner!
- 2) I seriously reduced my troublesome FM interference with a simple trick. Somehow I noticed that a few pF across some of the loop turns seemed to reduce it. So I experimented first with a tiny variable (which turned out to have too many pF even fully open) and then with a small length of thin teflon insulated wire. The best positioning was from the exact center of the total winding across a few turns to a position one turn in from the end of the winding opposite the diode. I put it there to possibly help balance the loop because I use the other half of the winding for the detector. A few turns of the wire around each winding did the trick.

The upper half of the BCB used to be plagued by FM. It was difficult to tell if I was hearing a weak AM station or FM interference unless I spent some time listening. A real pain! My mod suppressed interference on the upper half and I can only hear FM if I tune above 1700. A lucky break after on and off problems for years!

- 3) I tried Ben's diode bias circuit this year along with my favorite 107 nA Schottky diode. I had to bias the diode, so that it appeared to have a higher saturation current. A bit more, lower in the BCB, and a bit less near the top. Fits theory pretty well! I used only the T3/AM20 transformer on my RCA mic elements to avoid possible problems with the Select-To-Match circuit and the bias circuit not getting along. How best to hook the two up left some doubt. For my setup, I could never decide if the STM was better than the T3/AM20 alone anyway.

Dan McGillis, Open Class Entry and Active Device Entry

I used two radios in the 1/15/10 contest.

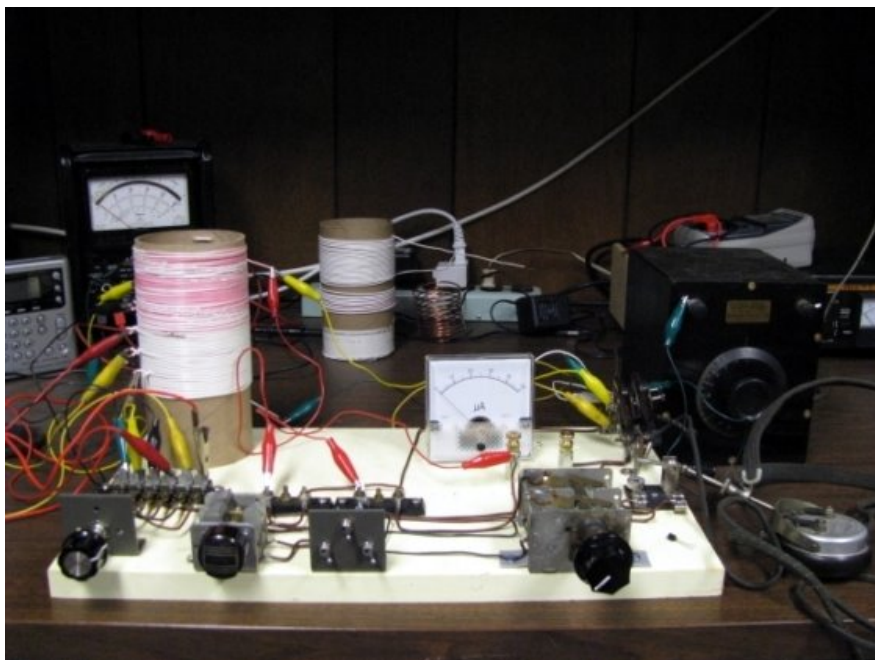
For the BCB Crystal radio section, I used a simple double tuned Mystery set made with dual-gang capacitors from Leeds Radio and ferrite rods wound with 165/46 litz. It's described [here](#).

It was a very good daytime performer, but only a fair night time DX catcher. The bandwidth was just a bit too wide for all the strong DX stations and the digital hash which now seems to be everywhere at night. Still, it's a nice loud little radio.

For the active device section, I used a 2-JFET Regen plus an op-amp audio amplifier with an active bandpass filter. My primary goal was to be able to copy Morse code (CW) in the 40 meter ham band (7 MHz). The radio is described [here](#).

The performance of this simple set-up really surprised me. It's an excellent CW receiver -- stable, quiet, sensitive, and selective. Excellent for SSB and AM too. A real keeper. I even managed to make some 2-way contacts on 40m using this receiver and about 3 watts of transmitting power. That was a lot of fun.


Jerry Walker, Open Class Entry



-The crystal set used was double tuned.

-The antenna was a 75 ft long wire.

[Continued on Page 3.](#)



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- [Crystal Radio Entries](#)
- [Sprint Contest](#)
- [Headphones](#)
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- [Favorite Links](#)
- [Contact Jack](#)

Sub Pages

- [Main Page](#)
- [2004 Page 1](#)
- [2004 Page 2](#)
- [2004 Page 3](#)
- [2005 Page 1](#)
- [2005 Page 2](#)